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Northern
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Northern Region WILDERNESS ANALYSES for Oil and Gas Leasing

Social and Economic Background Document for Designated and Proposed Wilderness Study Areas

NORTHERN REGION WILDERNESS ANALYSIS

FOR OIL AND GAS LEASING

Social and Economic Background Document for Designated and Proposed Wilderness Study Areas

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INTRODUCTION

The Wilderness Act of 1964 permits minerals exploration and development in designated wildernesses until the end of 1983. Active existing leases or claims may be worked beyond that date.

There are 36 designated or potential wildernesses within the National Forest System lands of Montana and North Dakota. These wildernesses occupy 4,839,243 acres of land or about one-fifth of one percent of the U.S. (an area the size of New Jersey).

In December 1981, there were over 850 pending applications for oil and gas leases in portions of these lands. An interdisciplinary team was appointed to assess possible social and environmental effects of leasing and the restraints that would be necessary to protect the wilderness characteristics if leases were approved.

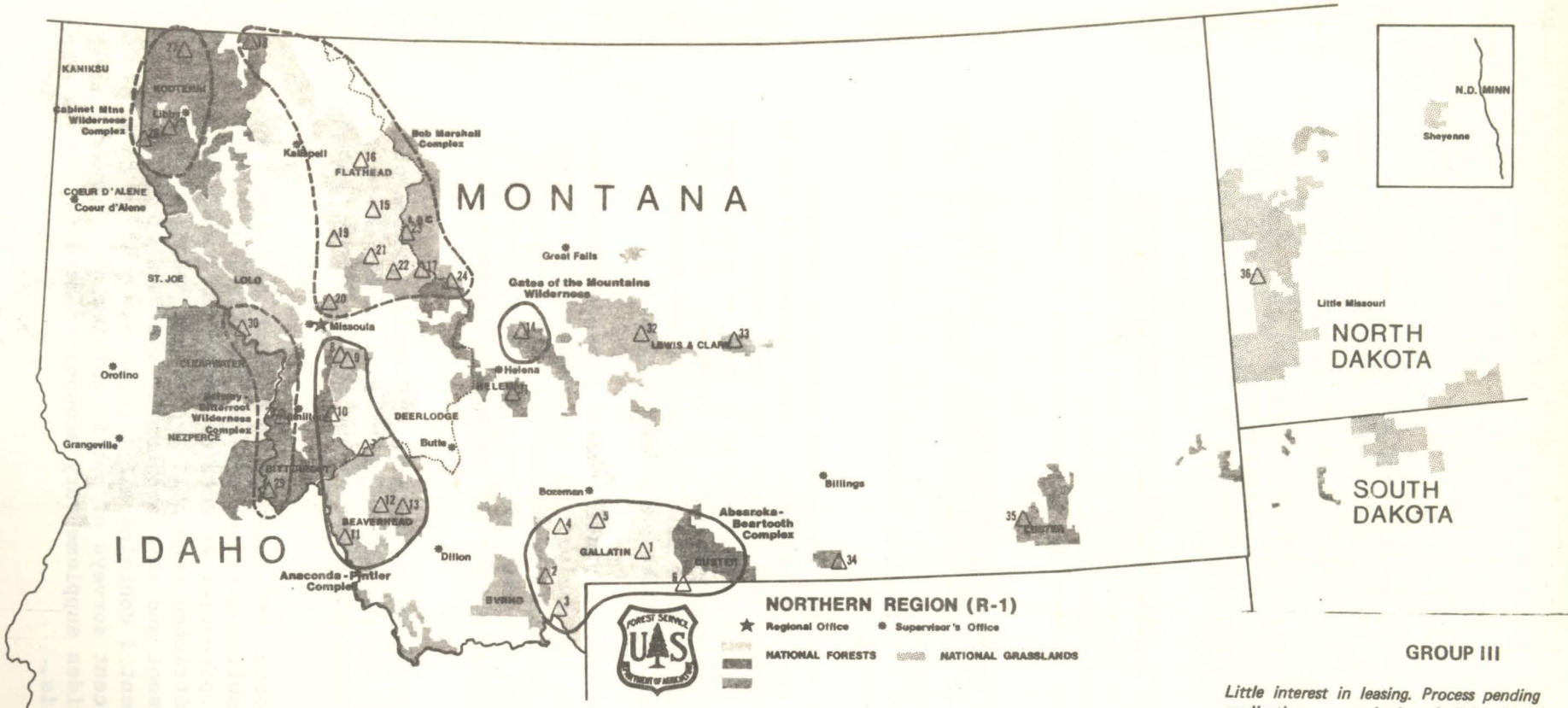
Early in 1982 the I.D. team began an environmental analysis of the Absaroka-Beartooth, Anaconda-Pintler, and Gates of the Mountain Wildernesses, along with several small, adjacent special management areas. It is expected that additional wildernesses will be evaluated for leasing feasibility in other oil and gas EIS's or Forest plans (see the map, p. iv).

The I.D. team requested a social and economic background report to provide information on potentially affected human populations. This document is (1) to provide "baseline" information on counties and communities that might be impacted by oil and gas operations, (2) to survey existing data on public expectations for wilderness including public responses to the prospect of wilderness leasing, and (3) to portray the broad range of possible social and economic effects that could result from leasing and subsequent activities.

It is timely and cost-efficient to prepare a single social background document which could be used as a reference in the analysis of any combination of the Northern Region's 36 designated and potential wildernesses. The alternative would be to prepare separate documents for each analysis that may occur in the months ahead, with resulting duplication of content and weaker integration of potentially accumulative effects.

The "study area" for this social background analysis is the entire system of present and proposed wildernesses in Montana and North Dakota. These 36 units are in or adjacent to 34 counties, which are here defined as the "local zone of influence."

Chapter 1 provides information on social and economic conditions and trends in the local zone counties. Data for multicounty sectors and the state are also presented. Chapter 2 estimates the potential effects of different levels of oil and gas operations. Data can be abstracted from this report and updated, as necessary, for inclusion in the present and any forthcoming analyses of Northern Region wilderness leasing. Attachment 1 contains all references cited in this report. Attachment 2 summarizes recent surveys of public opinion on natural resource issues. Attachment 3 provides supplementary economic base data for the 34 counties included in this analysis.



GROUP I

Absaroka-Beartooth Complex

1. Absaroka-Beartooth Wilderness
2. Taylor-Hilgard Wilderness Study Area [2]
3. Lionhead Proposed Wilderness
4. Spanish Peaks Primitive Area
5. Hyalite-Porcupine-Buffalo Horn
6. North Absaroka Wilderness additions

Anaconda-Pintler Complex

7. Anaconda-Pintler Wilderness & additions
8. Welcome Creek Wilderness
9. Slide Rock Proposed Wilderness
10. Sapphire Wilderness Study Area
11. Big Hole Proposed Wilderness
12. West Pioneer Wilderness Study Area [1]
13. Torrey Peak Proposed Wilderness

Gates of the Mountains Wilderness

14. Gates of the Mountains Wilderness and proposed additions

GROUP II

Bob Marshall Complex

15. Bob Marshall Wilderness
16. Great Bear Wilderness
17. Scapegoat Wilderness
18. Ten Lakes Wilderness Study Area
19. Mission Mountains Wilderness
20. Rattlesnake Wilderness and NRA
21. Bob Marshall Wilderness addition (Grizzly Basin)
22. Bob Marshall Wilderness addition (Clearwater-Monture)
23. Bob Marshall Wilderness addition (Renshaw-Packbridge-Leavitt)
24. Scapegoat Wilderness addition (Silver King-Falls Creek)

[1] Recommended for nonwilderness; not included.

[2] Portion recommended for nonwilderness not included.

GROUP III

Little interest in leasing. Process pending applications as required on individual basis.

Cabinet Mountains Complex

25. Cabinet Mountains Wilderness & additions
26. Scotchman Peaks Proposed Wilderness
27. Mount Henry Wilderness Study Area [1]

Selway-Bitterroot Complex

28. Selway-Bitterroot Wilderness & additions
29. Bluejoint Wilderness Study Area
30. Great Burn Proposed Wilderness

GROUP IV

Outlying areas. Schedule dependent on respective Forest Plan or future environmental analyses as required.

31. Elkhorn Wilderness Study Area [1]
32. Middle Fork Judith Wilderness Study
33. Big Snowies Wilderness Study Area
34. Lost Water Proposed Wilderness
35. Tongue River Proposed Wilderness
36. Twin Buttes Proposed Wilderness

Chapter 1: The Social Environment of the Study Area

The present and proposed wildernesses in this social and economic analysis are distributed among 25 counties and 10 National Forests in Montana and North Dakota. These lands consist of 36 scattered tracts ranging in size from 20,899 acres (Lionhead) to 1,009,356 acres (the Bob Marshall Wilderness). The smaller parcels are often proposed extensions of designated wildernesses.

Defining Zones of Influence

Oil and gas leasing, exploration, development, production, and eventual field abandonment can have diverse social and economic effects. In the analysis of these effects, it is helpful to define concentric local, regional, and national zones of influence around the scene of activities. Zone boundaries identify important differences in the type and extent of effects that are experienced as one moves farther away from the project area.

Local Zone

The greatest range and intensity of possible effects from exploration and development usually occur in the vicinity of field operations. Local residents see or hear trucks, drill rigs, and construction activity. Following an important discovery, they experience variations in the oil industry work force, expanded local employment opportunities, increased business activity, and greater demands for housing and public services. The introduction of a complex new technology and an influx of workers and their families will induce further economic and social changes, especially in rural areas. For these reasons, the main focus of this report is on the nature of the local zone and the types and intensity of the social and economic effects that may be experienced there.

Figure 1 identifies the local zone for this study. It is subdivided into four segments for later analysis. If leasing and subsequent oil and gas development were to occur anywhere in the study area, this zone is where many industry branch offices and support services would be located. This is also where incoming employees would seek homes and services, a large portion of local payrolls would be spent, and local revenues would be collected. A few cities in this zone are already affected by oil and gas operations. Billings, Laurel, Great Falls, and Cutbank-Shelby have field-service industries, gas plants, and refineries.

Regional Zone

The regional zone (identified in Figure 2) encompasses all of Montana, the western half of North Dakota, 12 counties of Idaho, 5 counties of northwestern Washington, and Park County in Wyoming (which includes Yellowstone National Park). It is the area in which the secondary effects of large-scale petroleum development would be felt; e.g., changes in business activity or recreation opportunities.

Most of the 1,500,000 inhabitants of the regional zone live in the vicinity of one or more Northern Region Forests. Almost all have some knowledge of portions of the wilderness study area and can drive to the nearest segments for weekend recreation. Many have visited parts of the study area and some use it regularly for hunting, fishing, hiking, skiing, canoeing, floating, or nature study.

Counties, Standard Metropolitan Statistical Areas, and Selected Places

Figure 1

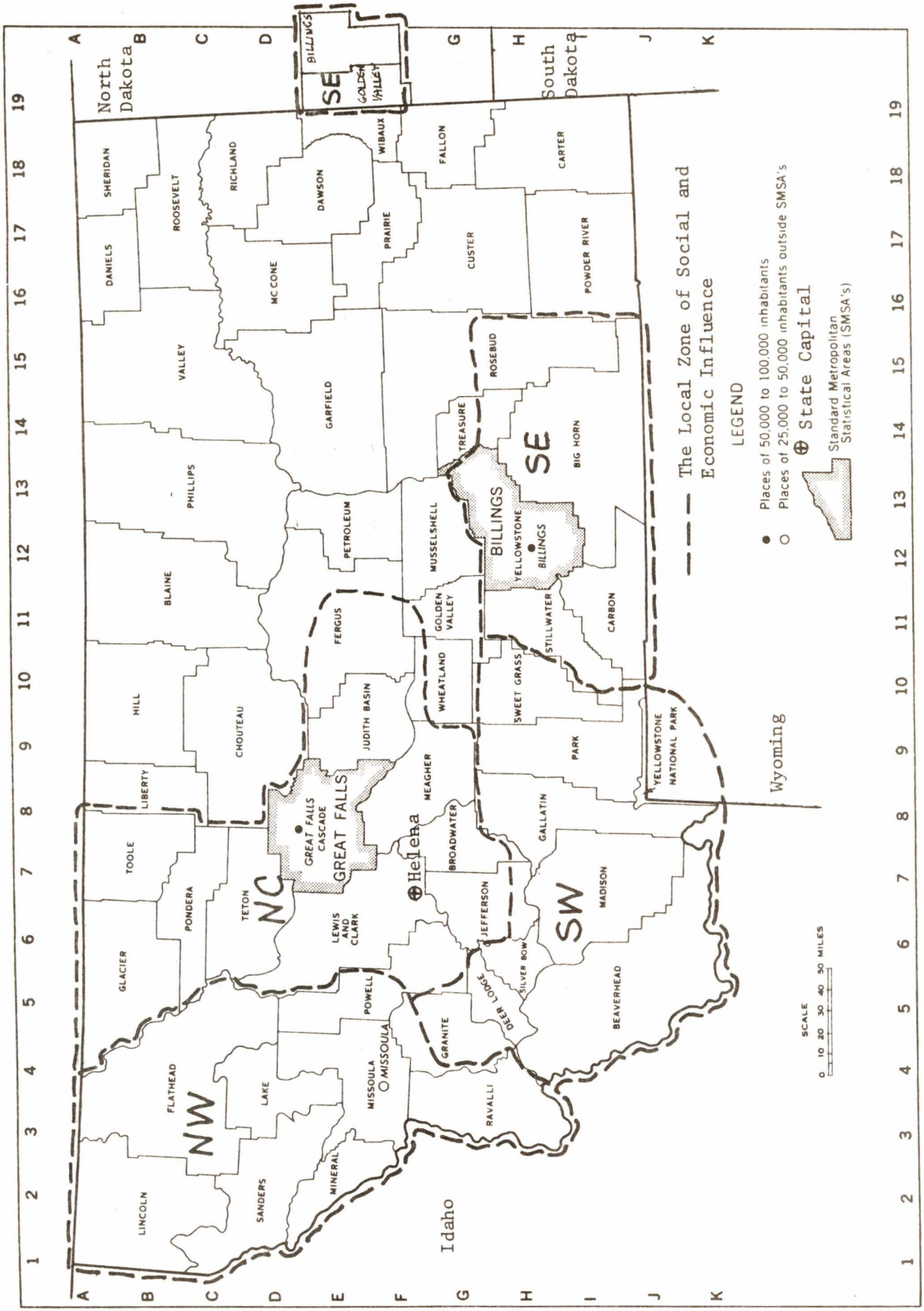
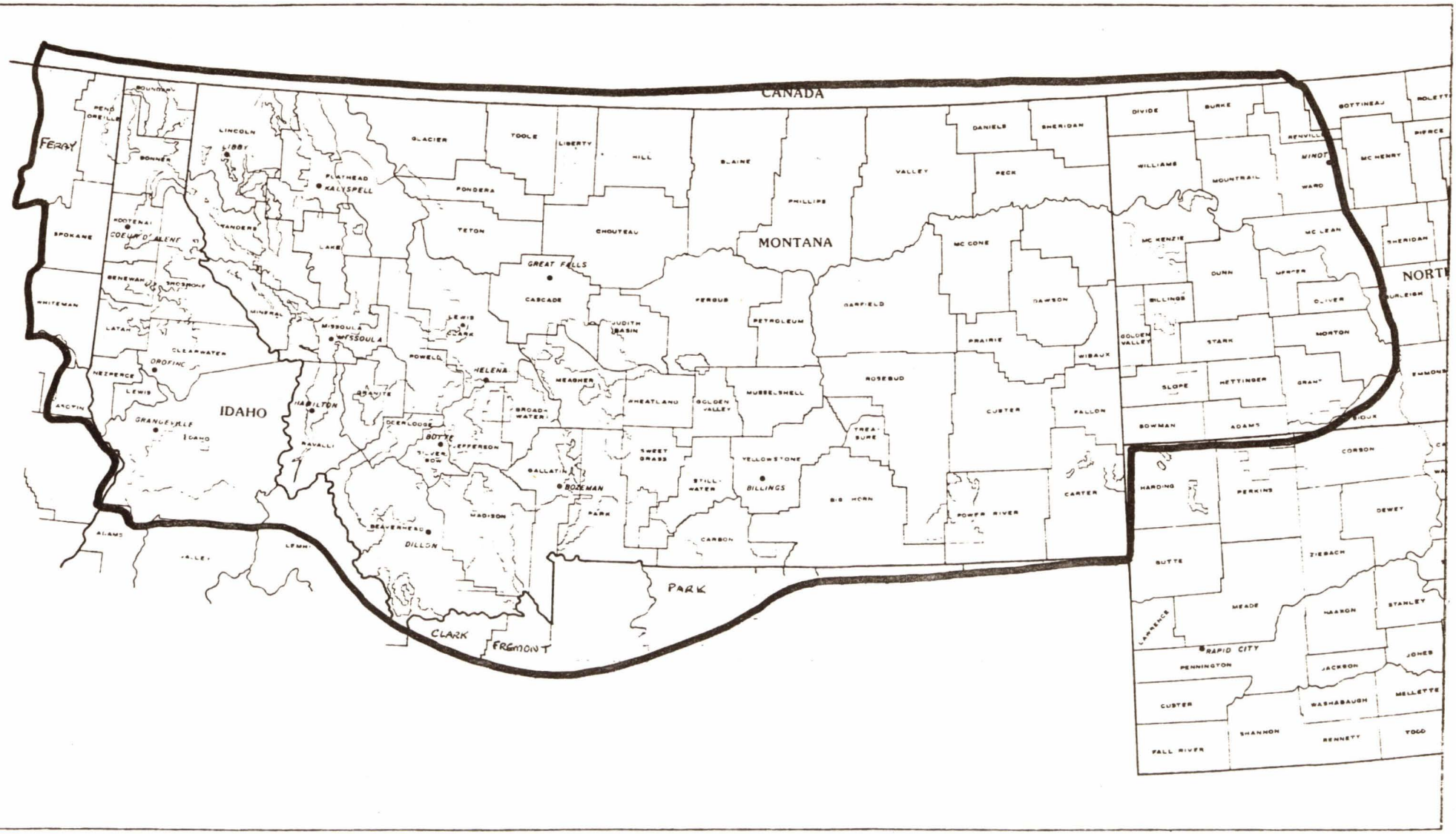


Figure 2: The Regional Zone of Influence



Regional business activity in such market centers as Billings, Great Falls and Spokane could be affected by large-scale oil and gas development. The States of Montana and North Dakota would collect a portion of Forest Service receipts from lease rentals and royalties, and state production tax revenues. The states monitor field operations to enforce health and environmental standards. Following leasing and commercial discoveries, regional petroleum and construction firms would expand their operations into the study area from existing headquarters in Billings, Cutbank-Shelby, Sidney, Williston, Dickinson, Spokane, or other locations.

National/International Zone

The repercussions of oil and gas activity in the study area would be felt nationally and, in the event of a series of large discoveries, internationally. Stockholder dividends could increase, along with the supply of oil and gas for consumers. Conservationists and environmentalists in all states would be concerned about physical impacts on flora, fauna, air, water, and fragile soils. Wilderness recreationists, scientists, and wilderness supporters would be distressed by such prospects as wildlife impacts, the destruction of unique ecosystems, rapid depletion of finite fuel resources, or the shrinking of remaining wildernesses.

With leasing and production, Federal tax revenues would increase. Federal resource agencies would need to increase budgetary and personnel allocations for oil and gas lease administration. With sufficient production, world markets and the volume of U.S. imports could be affected.

Local Zone Characteristics

The local zone is unusually large and diverse due to the scattered distribution of the 36 study area components. It includes most of 32 countries in Montana and two counties in western North Dakota. The zone extends north to Glacier Park, south to Yellowstone National Park, and across most of Montana (Figure 1). It straddles the Continental Divide and contains the headwaters of the Columbia, Missouri, and Yellowstone Rivers.

The western two-thirds of the zone consists of numerous mountain ranges interspersed with populated valleys that also serve as transportation arteries. In the east the mountains give way to the high plateaus, buttes, and broad valleys of the western Great Plains. In much of this area the steep slopes, high elevation, and short summers discourage crop farming, but livestock, wheat, and other grains are important at some locations in the western valleys and on the plains to the east.

The zone is well-endowed with timber, grasslands, water, minerals, wildlife, fisheries, and spectacular scenery. These resources contribute to the economic base, lifestyles, outlook, and recreational opportunities of local residents. The resulting social and cultural milieu differs in important respects from the more urban and industrial settings where most Americans live.

To simplify this 34-county analysis, without overlooking significant local data, the zone has been divided into four sectors (Figure 1) on the basis of geographic proximity, National Forest and county boundaries, and economic con-

siderations. This permits a relatively brief description and comparison of the economy, demography, social life, and outlook of different segments of the affected population. Table 1 identifies the counties and National Forests included in each sector, along with population data.

Demographic Trends

During the 1970-1980 decade, Montana's growth rate (13.3 percent) exceeded the national rate (11.4 percent), and lagged well behind rates in the other six Rocky Mountain states (28 to 53 percent). Although still very rural from a national perspective, the state is becoming more urban each decade. The state's 1980 population density was 5.4 persons per square mile, compared to 64 for the nation.[29/] But over half of these 786,690 people live in just 7 of the 56 counties (Table 1). These urban counties (all of which are in the local zone) have been attracting additional people because of the employment and amenities they offer. Most rural counties have been stable or declining in population due to the trend toward larger, more mechanized farms, declining family size, and the increased accessbility of regional market centers. In a few counties (Rosebud, Carbon, Big Horn, and Billings) energy development has reduced or prevented some of the out-migration that would have resulted from reduced agricultural employment.

About 660,000 people (84 percent of Montana's population) live in the local zone. The number of residents increased by 15.7 percent between 1970 and 1980, faster than the state as a whole. Two sectors (Figure 1) experienced rapid growth, the northwest (29 percent) and the southeast (23 percent), but for somewhat different reasons. Many people have moved to the western counties because of the (until 1980) expanding wood products industry, the affordable land, the scenic beauty, and the outdoor recreational opportunities. Some are "urban refugees" seeking a rural environment with a relatively mild climate, low pollution levels, and congenial community life. Others have visited the area as tourists and decided to return as retirees.

The southeastern sector (Billings - Forsyth) owes much of its growth to oil, gas, and to the increasing importance of Billings as an industrial, wholesale sales, and service center. This growth is expected to continue for several years whether or not leases are approved for wildernesses, although additional leases could increase the rate.

Yellowstone County (Billings) is the state's most populous with 108,035 residents. Rural Rosebud County (Forsyth) is adding people at the fastest rate (64 percent in the last decade). The two North Dakota counties in this sector are very rural (a total of 3,500 people) and continue to lose population despite recent energy development. Most oil workers elect to live in larger communities in other counties; e.g., Dickinson and Belfield in Stark County.

The southwest and north central sectors have increased in population at a much slower rate. Two local exceptions are the cities of Helena (the state capital) and Bozeman (the home of Montana State University). The closing of the Anaconda Smelter in Deer Lodge County and the copper refinery in Cascade County is expected to retard this growth even more, unless major new industries are established soon. Deer Lodge County's population decreased 20 percent during the past decade and additional people are now out-migrating to oil and coal fields outside of the zone or to other copper mining districts.

Table 1: County Population Trends, 1960-2000

Section & Forests	County	1960	1970	1980	% Change 1970-1980	Projected 1990	Native Americans	Percent N.Am. (1980)
Northwest Montana:	Flathead	32,965	39,460	51,966	31.7	58,500	552	1.1
	Lake	13,104	14,445	19,056	31.9	21,300	3,162	16.6
Bitterroot	Lincoln	12,537	18,063	17,752	-1.7	18,300	232	1.3
Flathead	Mineral *	3,037	2,958	3,675	24.2	3,900	45	1.2
Kootenai	Missoula	44,663	58,263	76,016	30.5	84,800	1,358	1.8
Lolo	Ravalli	12,341	14,409	22,493	56.1	25,400	160	.7
	Sanders	6,880	7,093	8,675	22.3	8,900	393	4.5
	Total	125,527	154,691	199,723	29.1	221,100	11,016	5.5
Southwest Montana:	Beaverhead	7,194	8,187	8,186	0	8,200	100	1.2
	Deerlodge	18,640	15,652	12,518	-20.0	10,500	247	2.0
Beaverhead	Gallatin	26,045	32,505	42,865	31.9	48,800	458	1.1
Deerlodge	Granite	3,014	2,737	2,700	-1.4	2,700	27	1.0
Gallatin	Madison	5,211	5,014	5,448	8.7	5,700	30	.6
	Park	13,168	11,197	12,660	13.1	13,900	62	.5
	Silver Bow *	46,454	41,981	38,092	-9.3	35,300	539	1.4
	Sweet Grass	3,290	2,980	3,216	7.9	3,700	14	.4
	Total	123,016	120,253	125,685	4.5	128,800	1,477	1.2
North Central Montana:	Broadwater	2,804	2,526	3,267	29.3	3,300	27	.8
	Cascade *	73,418	81,804	80,696	-1.4	86,000	2,670	3.3
Helena	Fergus	14,018	12,611	13,076	3.7	13,300	125	1.0
Lewis & Clark	Jefferson *	4,297	5,238	7,029	34.2	8,200	115	1.6
	Judith Basin	3,085	2,667	2,646	-0.8	2,400	10	.4
	Lewis & Clark	28,006	33,281	43,039	29.3	51,100	771	1.8
	Meagher	2,616	2,122	2,154	1.5	2,200	10	.5
	Powell *	7,002	6,660	6,958	4.5	7,200	169	2.4
	Glacier	11,565	10,783	10,628	-1.4	11,100	4,882	45.9
	Pondera	7,653	6,611	6,731	1.8	6,700	655	9.7
	Teton	7,295	6,116	6,491	6.1	6,500	81	1.2
	Toole *	7,904	5,839	5,559	-4.8	5,700	83	1.5
	Total	169,663	176,258	188,274	6.8	203,700	9,598	4.7
Southeastern Montana and Western North Dakota:	Big Horn *	10,007	10,057	11,096	10.3	13,400	5,126	46.2
	Carbon	8,317	7,080	8,099	14.4	8,900	32	.4
	Rosebud	6,187	6,032	9,899	64.1	12,700	2,433	24.6
	Stillwater	5,526	4,632	5,598	20.9	6,800	31	.6
	Yellowstone *	79,016	87,367	108,035	23.7	133,000	2,268	2.1
Custer	Billings, ND *	1,513	1,198	1,138	-5.0	1,200	36	3.2
	Golden Valley, ND	3,100	2,611	2,391	-8.4	2,400	48	2.0
	Total	113,666	118,977	146,256	22.9	178,400	9,974	6.8
	Zone Total	531,872	570,179	659,938	15.7	732,000	32,065	4.9
	Montana	674,767	694,409	786,690	13.3	935,600	37,280	4.7
	U.S.	179,323,175	203,302,031	226,504,825	11.4	252,300,000	1,200,000	0.5

Sources: 12, 14, 30 in Attachment 1.

* These counties are outside the study area but could experience secondary effects from oil and gas

The zone includes Montana's eight major cities, each of which serves as a market center for adjacent counties. Cities of 1,500 or more population are listed in Table 2, along with their population in 1970 and 1980, and rate of growth or decline during the last decade. Cities within this size range are favored for residence by most in-migrating workers. When none is within easy commuting distance of work (e.g., 30 miles by paved road), smaller communities and mobile home parks will attract most employees.

TABLE 2: Population Centers in the Zone

Sector	City	County	1980	1970	% Change
North-west	Columbia Falls	Flathead	3,112	2,652	17.3
	Hamilton	Ravalli	2,661	2,499	6.5
	Kalispell	Flathead	10,648	10,526	1.2
	Libby	Lincoln	2,748	3,286	-16.4
	Missoula	Missoula	33,388	29,497	13.2
	Polson	Lake	2,798	2,464	13.6
	Thompson Falls	Sanders	1,478	1,356	9.0
	Whitefish	Flathead	3,703	3,349	10.6
South-west	Anaconda	Deer Lodge	12,518	9,771	28.1
	Belgrade	Gallatin	2,336	1,307	78.7
	Big Timber	Sweet Grass	1,690	1,592	6.2
	Bozeman	Gallatin	21,645	18,670	15.9
	Butte	Silver Bow	37,205	23,368	59.2
	Deer Lodge	Powell	4,023	4,306	-6.6
	Dillon	Beaverhead	3,976	4,548	-12.6
	Livingston	Park	6,994	6,883	1.6
North Central	Browning	Glacier	1,226	1,700	-27.9
	East Helena	Lewis & Clark	1,647	1,651	-0.2
	Great Falls	Cascade	56,725	60,691	-5.6
	Helena	Lewis & Clark	23,938	22,730	5.3
	Lewistown	Fergus	7,104	6,437	10.4
	Townsend	Broadwater	1,587	1,371	15.8
	Cutbank	Glacier	3,688	4,004	-7.9
	Shelby	Toole	3,142	3,111	1.0
South-east	Billings	Yellowstone	66,798	61,581	8.5
	Forsyth	Rosebud	2,553	1,873	36.3
	Hardin	Big Horn	3,300	2,733	20.7
	Laurel	Yellowstone	5,481	4,454	23.1
	Red Lodge	Carbon	1,896	1,844	2.8
	Beach, ND	Golden Valley	1,381	1,408	-1.9
	Dickinson, ND	Stark	15,924	12,405	28.4

Source: 29

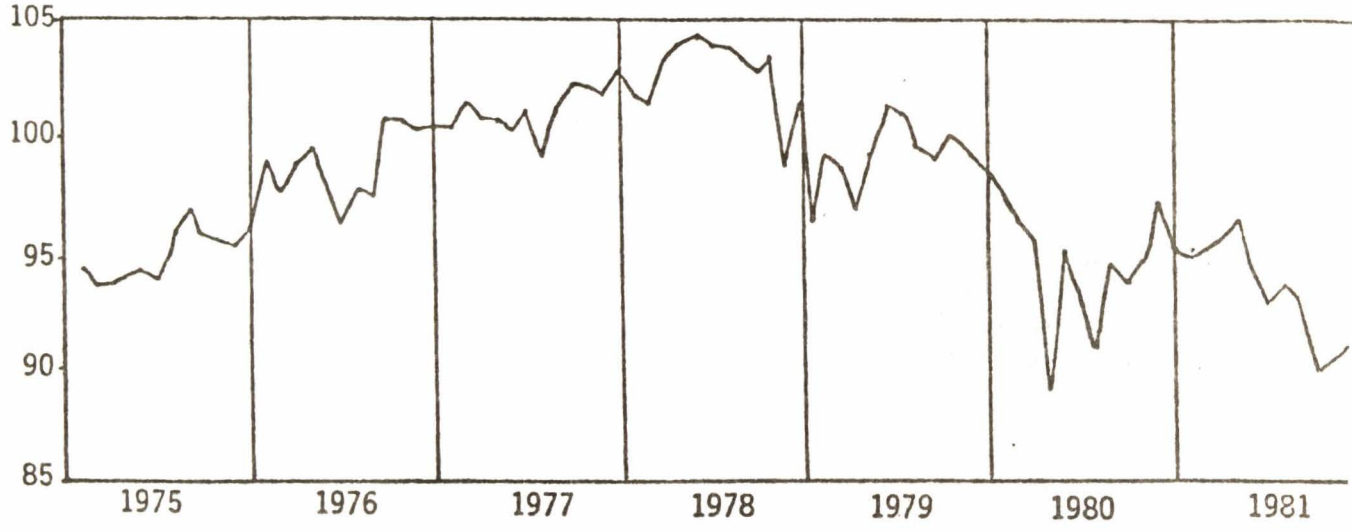
General Economic Trends

The economic conditions and trends in the local zone can be evaluated by analyzing state and local employment trends, unemployment rates, and income patterns for 1974-1981. The population shifts discussed in the last section also provide evidence of expansion or contraction of the economic base of particular counties.

No single indicator gives a very realistic picture of the economic situation in a state. For example, Montana's per-capita income is consistently below the national average ($7,528 versus $8,757 in 1979).[32] A major reason for this is the seasonal nature of many jobs (the hourly wage in most occupations is close to the national norm). There may also be fewer opportunities than in the high-income states for high-salaried professionals, managers, and skilled workers. Yet the state's unemployment rate is persistently below the nation's (6.0 versus 7.1 in 1980), and the percentage of families below the poverty level is about the national average.[30]

The Montana Department of Labor and Industry publishes periodic estimates of the state's economic situation, based on these and other indicators of economic activity. The State "Composite Index" uses 1972 as its base year and reveals a general pattern of real economic growth after the 1974-1975 recession, followed by a persistent decline beginning late in 1978 (Figure 3). The Composite County Index is provided in Figure 4.

Figure 3: Composite Index of Economic Indicators (based on rates of employment and unemployment, hours worked, current hiring or layoffs, and new building permits)

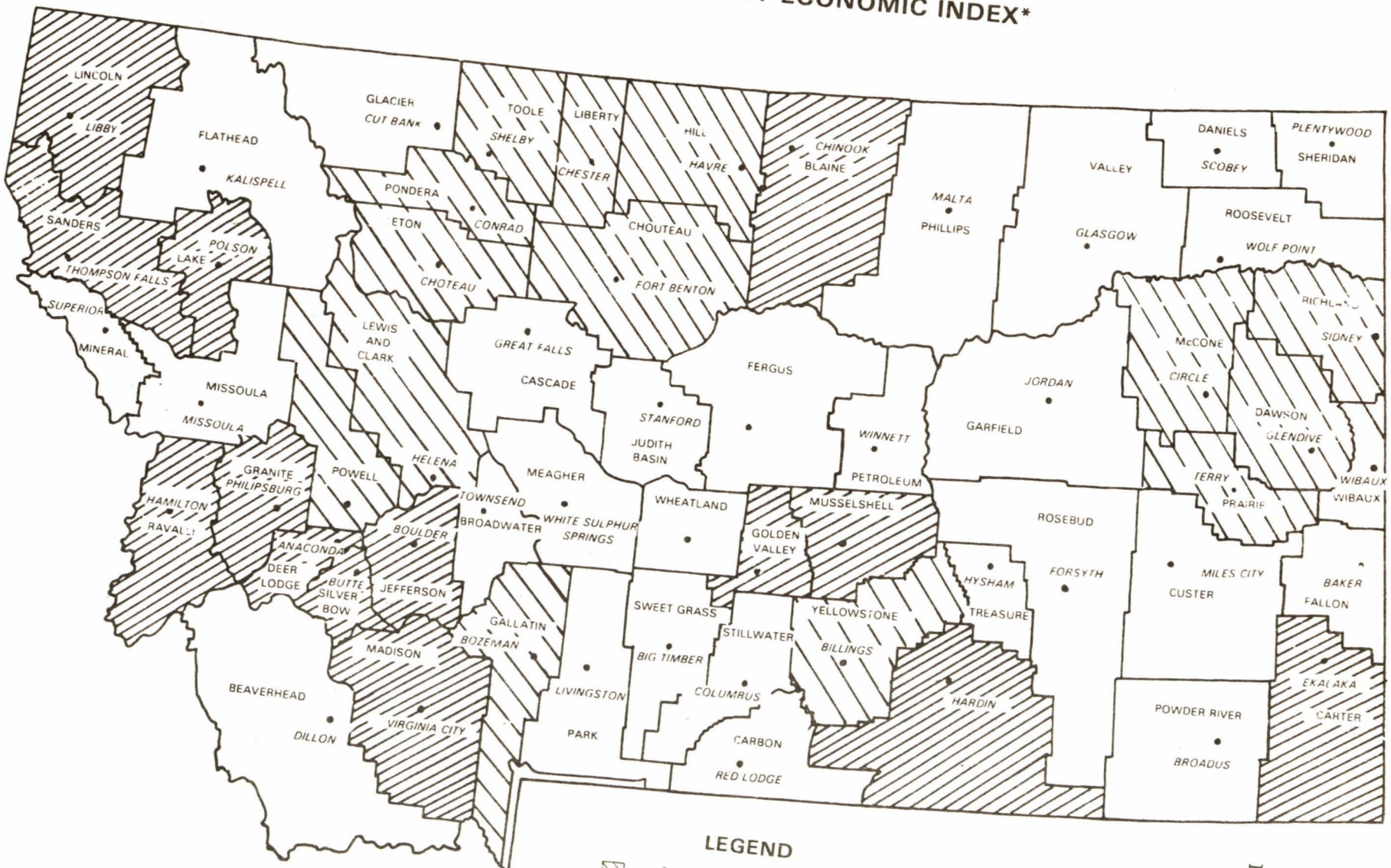


Annual Average of the Composite Index (1972 = 100)

1975	1976	1977	1978	1979	1980	1981
95.6	99.1	101.2	102.8	99.4	94.1	93.5

Note that this index has dropped considerably since December 1979 (from 98.7 to 90.2 in September 1981). In September, all six components were moving downward. Source: 15

COMPOSITE COUNTY ECONOMIC INDEX*



LEGEND

- Above Average
- Below Average
- Average

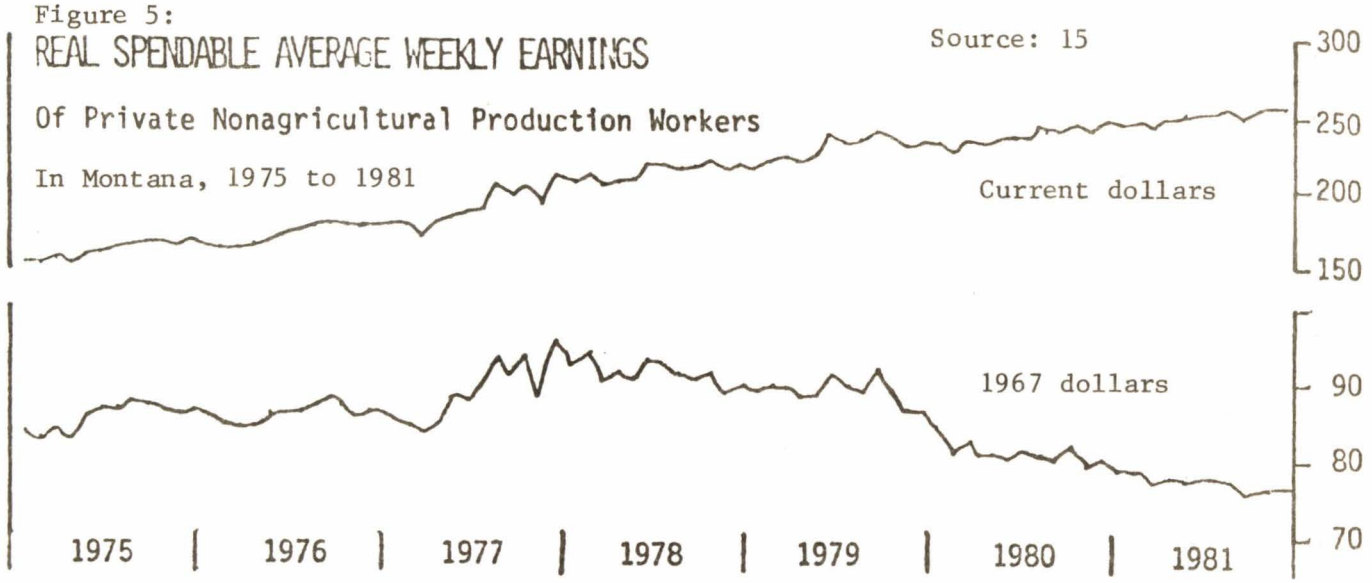
SOURCE. Western Analysis, Inc., 16

*NOTE Includes unemployment, income, employment and population growth

Figure 4

During the past few decades Montana's economic recessions were less severe than in the highly industrialized sections of the country. But the state seems to be increasingly subject to the same forces that shape national economic events. In the 1974-1981 period, mounting inflation offset average income gains. The average real income of nonfarm workers, which had been increasing since 1950, has been declining since 1978 (Figure 5). Escalating energy prices and rising loan interest rates are contributing to this decline in consumer "buying power."[7/] For a growing number of families, a reduced work week, temporary layoffs, or extended unemployment have further reduced family earnings.

Figure 5:



	Sep. 1981	Aug. 1981	Sep. 1980
Gross Average Weekly Earnings	249.90	255.20	241.60
Taxes Withheld (Family of Four)	40.57	42.07	38.50
Spendable Earnings	209.33	213.13	203.10
Adjustment for Price Changes since 1967	134.33	136.05	122.47
Real Spendable Earnings	75.00	77.08	80.63

Source: 15

In 1981 and 1982 there is growing concern about the effects of Federal budget cutting on Montana services. Some observers believe the state will need to increase its funding in some critical areas if social services are to remain adequate. This implies a need for additional tax revenues.

Figure 6 charts the major sources of personal income in Montana, by industry, from 1974 to 1979 (the last year reported by the USDC Bureau of Economic Analysis).[32/] Subsequent trends are roughly estimated by the author, using arrows for 1980 to 1981. Note the gradual rise in the current (inflated) dollar income generated by most sectors until 1979. Since then some sectors are leveling off or turning downward.

The major exception to the prevailing economic trend is agriculture, historically the state's single most important basic* industry. Unusually, dry crop years and low commodity prices dramatically depressed farm earnings in 1977 and again in 1979 and 1980. Grain production rose again in 1981 and the winter moisture accumulated for 1982 looks ample. However, the unpredictable rainfall and other weather conditions in parts of the zone do make agriculture a high risk industry and encourage large, capital-intensive, mechanized operations.

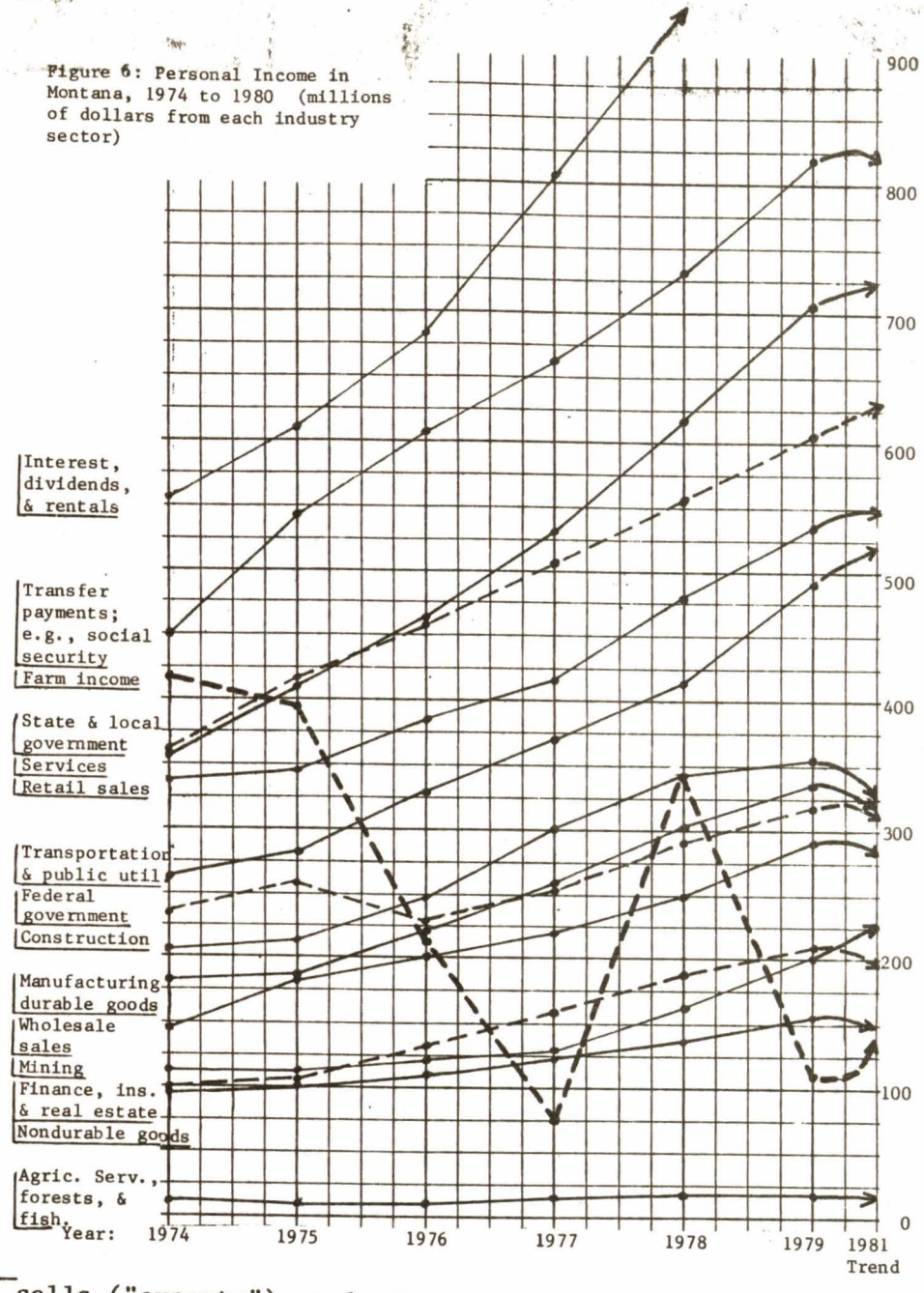


Figure 6: Personal Income in Montana, 1974 to 1980 (millions of dollars from each industry sector)

Source: computed from 31, 32

* Any industry that sells ("exports") goods or services to out-of-area customers and thus brings additional money into the local economy is "basic." When some of this new money is spent locally it can increase business activity, create "secondary" jobs in other businesses, and increase tax revenues, thus adding to the "economic base" of a community.

Today farming employs about 9 percent of the Montana labor force, in contrast to over 35 percent two generations ago.[16] Much of the state's agricultural production occurs in the rural Great Plains counties outside of the defined zone of influence. A large majority of each nonfarm activity in Montana occurs within the local zone.

Contract construction activity is also a basic industry when it brings in "outside" money and provides additional jobs or increased business activity locally. Throughout the last decade construction volume increased, but new projects and local residential construction have been severely curtailed since 1979 due to the high cost of financing new projects.

The wood products industry is experiencing a severe slump during 1980-1981, resulting in extensive layoffs that affect many western Montana counties. The slack market is attributed mainly to the reduction in construction activity.

Primary metals manufacturing is a fourth important basic industry. It is also experiencing a recession, due in part to reduced construction starts. Since the late 1970's there has been an increasingly sluggish market for copper, lead, and zinc. This was a major factor in the 1980 shutdown of the Anaconda Smelter, the Great Falls refinery, and the Bunker Hill complex in northern Idaho. Mining, which employs fewer people than processing, is also important and equally subject to market fluctuations. The zone includes both major mines and numerous small placer, quarry, and underground mines distributed among all sectors.

Railroad transport is another sector of reduced employment and reduced local tax support. Long-term reductions in passenger, mail, and freight traffic have led to the abandonment of many main and spur lines, and the elimination of some trains on remaining railways. Recent increases in coal train requirements have offset some of these losses.

The loss to the economic base from the depressed wood products, metals, and railroad industries is estimated to equal about 67 million dollars in labor income or 5 percent of the 1979 total for basic industries.[7] This has contributed to a gradual decline in secondary business activity such as retail sales and services. After months of fruitless job seeking and the expiration of employment insurance benefits, a portion of these displaced workers have migrated to other areas.

Despite these events, mining remains an important economic activity in Montana and western North Dakota. Substantially increased prices for crude oil, gas, rare metals, and steel alloys are stimulating exploration and development of new sources. A resurgence in construction activity would soon stimulate the metals and wood products industries.

Travel and tourism provide a sixth important basic activity in Montana (an estimated 6 percent of the nonfarm economic base). The large size of the state and its numerous scenic, recreation, and historic sites attract 3.5 to 4.0 million visitors annually.[16] Out-of-state travelers and tourists spend an estimated half billion dollars each year for food, lodging, and other purchases. Resident travelers spend almost as much. Tourism (travel for pleasure) is about 40 percent of the total.[5]

The out-of-state (basic) portion of the state's travel-tourism industry employs more people (4.3 percent of workers) than either mining or wood products manufacturing (2.1 and 3.0 percent). However, hourly earnings in the travel industry are considerably lower (3.0 percent of total income).16/ Most travel and tourist employment within the state occurs in the local zone (Table 3). Another growing basic industry that utilizes and depends on the state's natural and historical resources is film making, which has contributed 31 million dollars to Montana's economy since 1974.

TABLE 3: Top 20 Montana Travel Counties
1979

County	Travel Employment	Percent of of Total Employment
*1. Yellowstone	3026	5.3%
*2. Gallatin	2582	13.7%
*3. Flathead	2070	9.2%
*4. Cascade	1704	4.0%
*5. Missoula	1620	4.5%
*6. Lewis & Clark	1360	5.9%
*7. Silver Bow	1309	7.7%
*8. Glacier	1066	18.2%
*9. Park	638	10.7%
10. Dawson	542	8.7%
11. Hill	344	3.8%
12. Richland	323	5.5%
13. Custer	312	4.6%
*14. Beaverhead	303	8.4%
*15. Fergus	303	5.1%
16. Roosevelt	264	5.0%
*17. Lincoln	261	3.9%
*18. Madison	243	10.2%
19. Phillips	225	9.4%
20. Valley	195	3.7%
All other (most income earned within the zone)	1638	2.0%

* Local zone counties Source: 16

Other basic industries that have expanded during the past decade are Federal employment (6.3 percent of the Montana workforce in 1979), transportation (excluding railroads), and public utilities.

Each of the four geographic sectors in the zone differs significantly from the others and from the Montana average in its economic base, personal income trends, unemployment patterns, and other measures of economic activity (Table 4 and Figure 7). Sector characteristics are identified and compared in the following analysis.

TABLE 4: County Income and Unemployment Trends

Section & Forests	County	Average per capita income ($)			Unemployment (%)						
		1974	1979	% Change	1972	1974	1976	1978	1980	1981 Sept.	1982* Jan.
Northwest Montana:	Flathead	4,817	7,890	64	7.2	9.3	9.2	7.8	8.5	7.4	14.4
Bitterroot	Lake	3,871	5,782	49	5.5	6.4	7.2	6.5	7.1	5.9	12.0
Flathead	Lincoln	4,136	6,389	54	9.0	12.1	13.2	11.8	15.2	10.2	19.9
Kootenai	Mineral	4,097	6,760	65	6.7	9.6	8.6	8.5	10.5	7.4	30.2
Lolo	Missoula	4,639	8.303	79	4.5	6.0	6.8	6.5	6.9	7.2	11.7
	Ravalli	3,984	6,114	53	6.6	7.5	9.9	8.1	10.0	9.0	16.9
	Sanders	4,293	5,793	35	5.2	6.6	7.4	8.0	9.3	9.2	18.1
	Average of above	4,262	6,719	58	6.4	8.2	8.9	8.2	9.6	8.0	17.6
Southwest Montana:	Beaverhead	4,516	7,678	70	3.4	3.8	3.6	4.0	3.7	3.7	8.8
Beaverhead	Deer Lodge	4,591	6,788	48	4.3	4.1	6.7	9.3	8.6	12.7	16.1
Deer Lodge	Gallatin	4,438	7,041	59	3.0	4.3	5.1	4.3	5.0	4.3	8.4
Gallatin	Granite	4,528	6,770	49	7.1	6.3	9.5	8.8	7.6	10.4	15.8
	Madison	3,701	5,792	56	4.7	5.2	6.1	4.2	4.5	2.4	7.7
	Park	4,560	6,751	48	6.4	6.0	5.4	5.6	6.8	5.2	12.6
	Silver Bow	4,842	8,164	69	4.6	5.2	9.4	8.2	6.3	8.2	10.9
	Sweet Grass	4,751	7,351	55	2.4	2.5	3.6	2.4	1.9	2.1	6.8
	Average of above	4,491	7,042	57	4.5	4.7	6.2	5.8	5.5	6.1	10.9
North Central Montana:	Broadwater	4,666	6,382	37	3.9	4.3	6.4	4.5	7.1	8.0	14.6
Helena	Cascade	5,072	8,094	60	5.2	5.5	6.5	7.0	6.9	6.1	9.0
Lewis & Clark	Fergus	5,051	7,071	40	4.4	4.9	4.9	4.6	4.7	4.0	10.8
	Jefferson	3,155	4,869	54	6.0	8.3	7.7	7.6	6.2	6.2	11.6
	Judith Basin	5,541	5,969	8	3.9	3.9	3.4	9.7	6.7	1.6	6.4
	Lewis & Clark	5,481	9,189	68	3.7	4.7	4.6	5.4	4.8	5.5	8.5
	Meagher	4,897	7,575	55	4.8	4.9	6.9	4.6	4.9	3.1	13.1
	Powell	4,646	7,034	51	5.1	4.7	7.8	6.4	5.9	10.1	11.3
	Glacier	4,633	7,693	66	4.4	6.7	7.0	9.8	9.1	9.1	17.5
	Pondera	4,888	6,979	43	5.6	4.8	4.3	4.2	3.9	2.1	7.8
	Teton	5,968	6,972	17	5.2	4.0	4.1	4.1	3.7	3.2	6.0
	Toole	6,869	10,794	57	5.7	3.7	4.8	4.0	3.8	4.1	6.1
	Averages	5,072	7,385	46	4.8	5.0	5.7	6.0	5.6	4.6	10.2
Southeastern Montana	Big Horn	4,269	6,277	47	6.0	7.7	5.9	6.4	6.2	8.2	10.2
and Western	Carbon	4,998	6,343	27	6.3	5.0	5.3	5.8	4.2	3.7	8.2
North Dakota:	Rosebud	4,326	6,377	47	3.2	3.6	5.8	5.9	5.4	5.5	9.1
Custer	Stillwater	4,767	5,989	26	4.8	3.7	4.8	4.4	3.3	2.7	6.8
	Yellowstone	5,425	8.893	64	4.5	4.2	4.6	4.7	4.6	3.7	6.0
	Billings, ND	5,505	9,550	73	NA	4.4	5.9	5.1	2.2	1.9	3.7
	Golden Valley, ND	8.378	7,777	-7	NA	3.0	3.7	3.6	3.0	2.6	3.9
	Average of above	5,381	7,315	36	NA	4.5	5.1	5.1	4.1	4.0	6.8
	Montana	4,982	7,528	51	4.8	5.2	6.1	6.0	6.0	5.5	9.7
	U.S.	5,428	8,757	61	5.6	5.6	7.7	6.0	7.1	7.3	9.4

Sources: Compiled from 15, 32; in current dollars

Northwest Sector. The forest products industry is much more important here than in the remainder of the state, providing 30 to 60 percent of the basic employment income in each county. Activities include extensive logging and the manufacture of lumber, plywood, log homes, paper, containers, assembled wood products, and fencing materials. The 1980 - 1981 slump in this industry has resulted in several mill closures, extended layoffs, and the highest level of employment of any sector. The average rate of unemployment in the 7 counties was 21.1 percent in February 1982, compared to 6.6 in November 1978. Per capita income increased at an above-average rate from 1974 to 1979, but 1979 income remained well below the state average in five counties. Burlington Northern Railroad and both major east-west highways traverse this zone, which includes the west entrance to Glacier Park. Travel and tourism are important, but are subject to fluctuations induced by severe weather and the price and availability of gasoline.

Mining has been relatively unimportant in this sector, but the 1981 opening of the Troy-ASARCO copper-silver mine and concentrator has created 320 new jobs in Lincoln County, with most employees hired locally. Two major mining firms are now exploring for additional metallic ore deposits in this vicinity. Aluminum metal is refined at Columbia Falls, providing about 1,300 jobs in Flathead County. A vermiculite mine near Libby employs 200 workers. Some seismic exploration for oil and gas is occurring in the northern counties and two wildcat wells have been drilled but no discoveries are reported.

Mining, metal refining, public and private forest management, the Rocky Mountain Laboratory in Hamilton, and higher education (University of Montana and Flathead Community College) offer year-round employment and help stabilize this unusually seasonal economy which has substantial winter layoffs in the logging, construction and tourism industries. Both Missoula and Kalispell are also regional shopping centers. As the number and variety of their businesses increase, more Montana and Canadian consumers regularly shop in these cities.

Southwest Sector. For decades mining and mineral processing have been more important here than in the other sectors. Butte, Anaconda, Philipsburg, and Virginia City were founded as mining camps over a century ago. There is now renewed interest in the potential of this sector for precious metals and alloy elements such as molybdenum. Copper, lead and zinc have been continuously produced at Butte. Numerous gold and silver mines are operating or being developed and some abandoned mine sites are being reevaluated. Several talc mines and a processing plant at Dillon are important sources of employment in Beaverhead and Madison Counties.

In Butte, the substitution of a single open-pit mine for dozens of underground operations and the closing of the Anaconda Smelter have resulted in a loss of 6,000 union-scale jobs since 1950.[16] The most affected counties (Silver Bow and Deer Lodge) have declined in population throughout this period. Both cities are actively seeking new industries to employ their displaced workers. Energy research is a promising new industry in Butte, employing about 300 people in 1980.[6]

A proposed platinum mine in the Stillwater complex south of Big Timber may employ about 500 people and a second project nearby could employ 200 more. A mine and mill are now operational at Philipsburg and a gold and silver leaching project is planned. Several petroleum crews are reported in the vicinity of Dillon, Deer Lodge, and Drummond,[15] some on lands near the study area. Unemployed mine workers have been exploring job opportunities with these ventures.

Unemployment rates remain high in Butte and Anaconda, and per-capita income in most sector counties is below the state average. State government employment is a mainstay for several counties. Expanding academic programs at Montana State University and Montana College of Mineral Science and Technology have created new jobs in Bozeman and Butte. There are also two mental hospitals, a prison, Western Montana College in Dillon, and a few branches of state offices in this sector.

The southwest leads the state in tourism and is now increasing publicity to expand this trade. Within this sector are the northern and western gateways to Yellowstone National Park. In addition, the numerous ghost towns, historical museums, ski bowls, and opportunities for hunting, fishing, hiking, and nature observation attract visitors each season of the year.

North Central Sector. The north central sector is a leading livestock and grain producing area for which Great Falls serves as a wholesale sales and shipping center. Otherwise the sector's economy is varied and locally specialized.

Federal employment provides half of Great Falls' economic base. The major employer is Malmstrom Air Force Base, where sharp personnel cutbacks occurred in 1976 and 1979. The city also lost 1,000 jobs when its zinc smelter closed in 1973 and another 500 when the copper refinery closed in 1980.[8/] Great Falls had a net population loss of 5.6 percent between 1970 and 1980. This trend may be reversed when construction of a planned power plant and a major grain processing facility commence, and if Great Falls is selected as the site for a proposed new aluminum plant (Anaconda is an optional site).

Helena, the state capitol, enjoys the economic stability derived from state payrolls and an active zinc smelter in East Helena. It is also the state headquarters for Mountain Bell, the home of Carroll College, and the site of a Veterans Administration hospital. The city has experienced steady growth and Lewis and Clark County enjoys one of the highest per-capita incomes in the state.

The Cutbank-Shelby area has had producing oil and gas fields since the 1950's. Petroleum operations are now extending outward from this base of operations. The area has gas plants, a small oil refinery, and a variety of field service companies. New limestone quarries are being developed near Townsend and Montana City, placer mining activities are increasing in several sector counties, and there is considerable exploration for both metals and fossil fuels.

Lewistown is a market and service center of increasing importance to local ranchers, miners, and the travel trade.

Southeast Sector. Billings, Montana's largest and most prosperous city, plays a key role in the economy of this sector and the northern Great Plains region. It is the state's leading wholesale and retail sales center, the headquarters of many energy firms and the site of two of the state's major oil refineries. The third large refinery is at neighboring Laurel.

Figure 7: Montana Labor Force Distribution in 1979

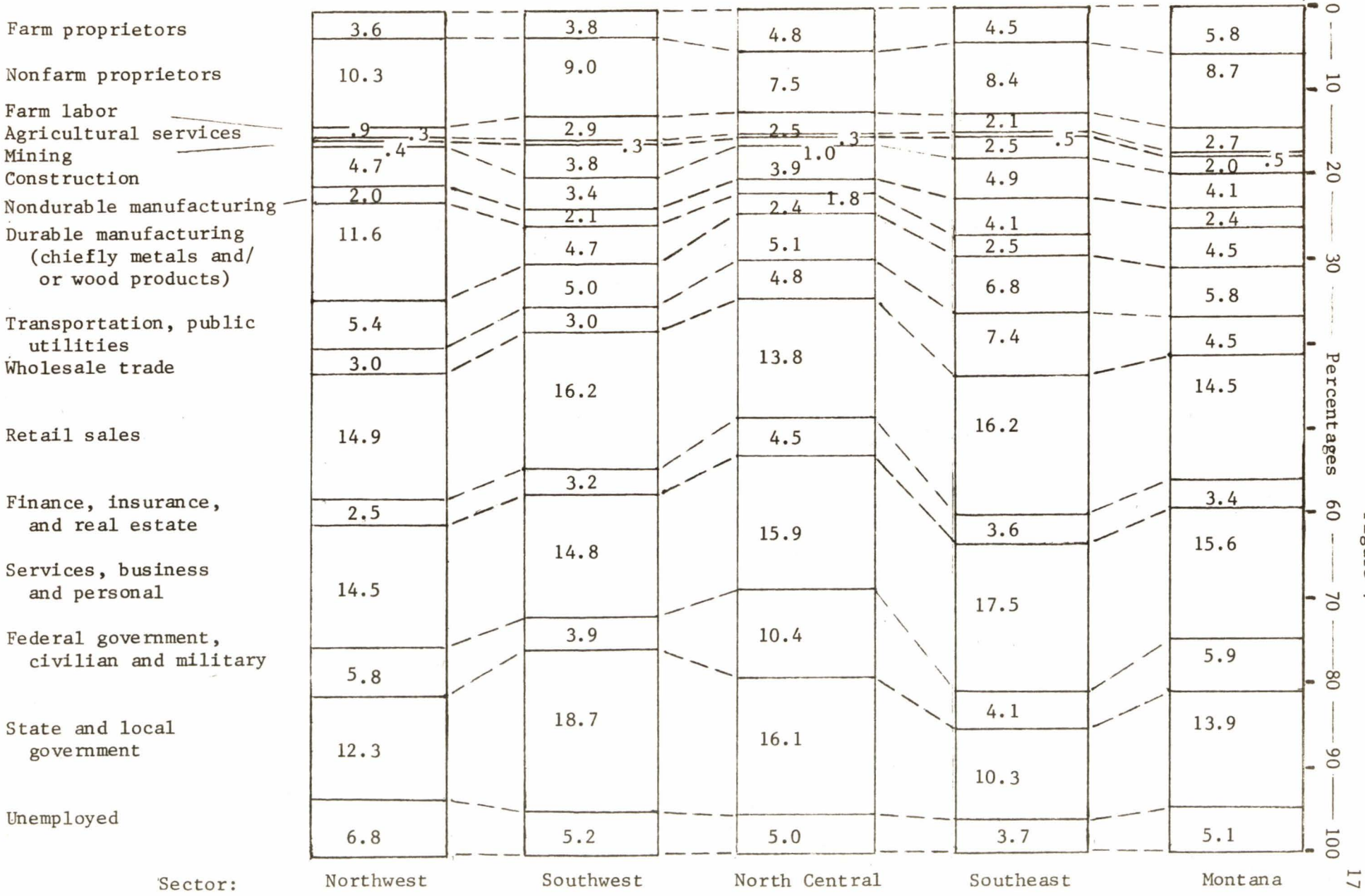


Figure 7

Billings serves the irrigated farmlands of the Yellowstone Valley as a shipping and food processing center. The headquarters of the Custer National Forest, the State Office of the Bureau of Land Management, and the District Office of the U.S. Geological Survey, and offices of the Bureau of Indian Affairs, Bureau of Reclamation, and other Federal agencies are located here.

Yellowstone and Carbon (Red Lodge) Counties are the northeast gateway to Yellowstone Park, major wildernesses, and other recreation sites. There are extensive facilities for travelers, tourists, and conventions.

The other counties of this sector are very rural and supported by grain and livestock ranching and energy production. There is a potential for further development of coal and oil fields and related energy production facilities on Federal, private, and tribal lands in this sector. Because of energy development, unemployment is lower here than in the other sectors. Average incomes are above average in the energy counties and below average in the others (table 4).

Figure 7 compares the four sectors graphically. Note the differences in economic activity among the sectors, and in particular the considerable variation in the importance of agriculture, Federal employment, and manufacturing.

The Outfitting Industry

As Table 6 (page 23) suggests, a significant portion of wilderness use, especially in the Bob Marshall, Great Bear and other large wildernesses is in the company of professional outfitters and guides. Wilderness-dependent outfitting and associated lodging and service facilities are expanding businesses in Montana.

The Montana Outfitters and Guides Association reported 471 registered outfitters and guides in the state in 1980. A 1975 survey conducted by the Association 13/ revealed an average of 55 clients annually per outfitter. Both outfitters and clients were asked about total expenditures in the state. Allowing for a 10 percent increase in the number of outfitters and 50 percent inflation since 1975, the survey suggests that each 1981 client spent $1,250 in the state, about half of which was paid to the outfitter.

If these generalizations are reasonably accurate, outfitting stimulates over $32 million worth of business annually. About $17,000,000 of this is paid directly to outfitters, much of it for wilderness trips. Most of the remainder is spent (in descending order of value) for licenses, transportation, restaurants, motels, supplies, gifts, food, beverages, taxidermy, and meat packing. Out-of-state clients produce "export" income, so this part of the outfitting business is basic industry and would generate secondary employment and income.

The Montana Oil and Gas Industry

The oil and gas industry has been present in Montana since the early 1900's and has become more important since the 1973 energy embargo. After adjusting for inflation, this industry (all phases) experienced a significant increase in labor income during 1980, accounting for 11 percent of the state's basic nonfarm earnings. 7/

After 3 decades of expansion, Montana oil production began declining about 1968, but has been relatively stable since 1975. Gas production peaked in 1973 and was almost that high in 1979. Most fields are old and declining, proven reserves are dwindling, and refineries are becoming dependent upon imported Canadian petroleum. In 1979, about 83 percent of the crude oil refined in Montana was imported from outside the state (47 percent from Canada and 36 percent from Wyoming). However, nearly 30 percent of the crude oil produced in Montana is exported 17/. Unless new discoveries are made, future output and earnings in this sector will gradually decline.

Since about 1976, Montana has experienced a sharp rise in petroleum exploration and development activities on public and private nonwilderness lands. Most of this activity has been concentrated in the Williston Basin, one of the most promising exploration areas in the Nation, and the Sweet Grass Hills (Cut Bank-Shelby area). The recent discoveries of oil and gas in the Wyoming Overthrust Belt have stimulated corresponding exploration activity in western Montana. One indication of the potential for oil and gas exploration is that currently more than 2.3 million Federal acres (Forest Service and Bureau of Land Management) are under lease in western Montana and more than 7.5 million acres await lease issuance.

The oil and gas industry is already well-established in the north eastern and southeastern sectors with producing oil and gas fields (some being the largest in the state) plus several refineries and gas plants. Although current statistics are not available to assess the economic importance of this industry in each of the sectors, it is most significant for income earnings in Billings where the largest refineries and many industry service firms are located.

Currently there are no producing fields, refineries, or gas plants in the two western sectors of the local zone. There is, however, a substantial number of acres under lease and lease application. Some seismic testing and exploratory drilling have taken place in these sectors. Thus, there may be a potential for increased oil and gas employment and earnings in all sectors.

Note that all zone activities, except some preliminary exploration, have been outside of the study area (the designated and proposed wildernesses). Since activity levels are expected to increase in the future, the economic importance of this industry should also increase.

Ethnic Background

Most Montanans (94 percent in 1980) and North Dakotans are 3rd to 5th-generation descendents of European immigrants.29/ The great majority today were either born in the state or migrated to it from the Midwest, the Pacific Northwest, or Canada. In 1970, 60 percent of Montanans were born in the state and only 3 percent were born abroad. As a result, most European ethnic differences have been seriously altered or lost. The state's Hutterites provide one exception to this trend. This German-Swiss religious group lives on communal farms and strives to preserve its dialect and traditions.

About six percent of Montanans are of American Indian, Asian, African, or other non-European heritage. Some of these residents have retained unique elements of their ancestral culture, including language, religion, ceremonies, foods, or other traditions, but most are now bicultural.

The northwest, north central, and southeast sectors include or are near four Indian reservations (Table 5). The eastern reservations (Crow and Northern Cheyenne) have extensive coal reserves and there is mounting interest in further exploration for oil and gas. The Flathead and Blackfeet reservations are located on the Montana Overthrust Belt and the latter has existing oil and gas production.

TABLE 5: Zone American Indian Population in 1980

Reservation	Major Tribes	Population by County*		% of County
Crow	Crow	Big Horn	4,303	38.8
		Yellowstone	2,268	2.1
Northern Cheyenne	Northern Cheyenne	Rosebud	2,433	24.6
		Big Horn	823	7.4
Blackfeet	Blackfeet	Glacier	4,882	45.9
		Pondera	655	9.7
Flathead	Kootenai, Salish	Lake	3,162	16.6
		Missoula	1,358	1.8
		Sanders	393	4.5
State of Montana	All tribes	All counties	37,270	4.7

Source: U.S. Census, 1980.
*County populations include some members of other tribes.

Tribal leaders on each reservation desire to develop mineral resources in a way that provides long-range economic benefits for the tribe without disruptive social impacts. There is an increased effort to negotiate contracts with energy firms that will cooperate in achieving these goals.

The remaining ethnic minorities in the Local Zone are much smaller, totaling 1.2 percent of the population. These include blacks (principally in Great Falls, Billings, and Missoula) East Asians (most numerous in Great Falls, Billings, Bozeman, Butte, and Missoula), and others not yet differentiated by the Census Bureau.

Contemporary Lifestyles

In addition to ethnic distinctions, important differences in lifestyle and outlook are associated with occupation, education, age, length of residence in the area, and location (e.g, urban or rural, east or west). Occupation-based lifestyles are evident in "one-industry" towns where a large segment of the work force is employed by one or more timber, mining, or energy corporations. The existence of a university, a seat of government, or a large public facility in some communities brings many professionals and technicians into the vicinity. "White collar" workers (secretarial, sales, and personal services) are an expanding segment of the urban workforce.

In rural areas lifestyle differences are apparent among loggers, livestock ranchers, grain farmers, local businessmen, miners, retirees, and youthful "back to the land" migrants from distant urban areas. Many rural residents depend on the land for their livelihood and some value it primarily for its scenic and recreational aspects.

These urban and rural lifestyle categories vary, sometimes substantially, in their modal orientation toward appropriate land uses, concern for the environment, outdoor recreation preferences, and the national energy situation. Managers and professionals employed by development firms, most local businessmen, and landowners with mineral rights commonly support expanded development of minerals, even though they may have reservations about where, when, or how these activities should occur. Miners and loggers often welcome resource development projects that will increase local employment options.

Oil and gas operations evoke opposition among retirees and others who have moved to rural areas to get away from urban conditions such as pollution, noise, and crime. Some long-term rural residents also regard their natural environment and recreational opportunities as outstanding and would oppose any new activity that could adversely affect them. Add to this the portion of urban residents who look upon wildernesses as the most desirable remaining primitive areas, favor their continued preservation, and spend some of their vacation time in these settings.

A variety of organized special interest groups focus on these orientations and concerns. Environmental groups, professional associations, conservation organizations, recreation clubs, and local booster groups often express their views on wildernesses publicly in hopes of gaining broader support. Each draws its membership from the above lifestyle orientations, and from the ranks of homemakers, students, public officials, teachers, or other categories of people that may include a wide range of views about public land use.

Certain core values seem to be shared by most people in the local zone. There is a great deal of pride in the scenic beauty and unspoiled character of the local environment. There is also a strong regard for traditional values like landownership, private enterprise, self-sufficiency, neighborliness, and local autonomy. Most residents who favor resource development also support environmental protection.

People also recognize the increasing importance attached to the energy resources of this Region, and the challenges this poses for the residents of this area. The Region's inhabitants are themselves very energy-dependent. They travel a great deal and make extensive use of off-road vehicles. Winters are long and cold and each home consumes large quantities of oil, coal, wood, or hydroelectric energy--all available in the Region. Nevertheless, if energy development is to occur, most residents want it to be a gradual, well-managed process with optimal local economic benefits.

Further insights into the quality of the social life in the Forest zone can be gleaned from a comparison of social statistics for Montana, North Dakota, and the U.S. Because of its proximity to western North Dakota and its comparable economic base, eastern Montana's statistical pattern would be expected to fall somewhere between the Montana and North Dakota averages.

These statistics show how these states and the nation compare on some popular measures of community stability. North Dakota's crime rates, the lowest of the 50 states in some categories, suggest a very orderly community life and lend credence to the local claim that houses and autos need not be locked. Montana's rates are significantly higher than North Dakota, but still well below the national average, especially for violent crimes. Other data show that Montana is a bit more urban than North Dakota and closer to the National average in its rates of population growth, unemployment, divorce, and deaths from traffic, suicide, and alcoholism.

Abstracts from recent opinion surveys show how Montanans and North Dakotans view energy development in relation to the environment and quality of life. These are provided in Attachment 2, especially items 14-33. The majority favor some level of development, but also stress the importance of environmental protection.

More extensive studies of rural Americans indicate that over 80 percent have a positive attitude about their environment. Only 5 percent evaluate their setting negatively,[3/] despite the often substandard quality or quantity of streets and roads, utilities, developed recreation, high-paying jobs, shopping facilities, and police, fire, and medical services.

Rural residents value such qualities as quiet neighborhoods, easy access to the outdoors, absence of crime, economic independence, a safe environment for children, and the security of a friendly community where mutual trust and aid are a matter of course. These perceptions are widely shared by residents of the local zone.

Wilderness User Characteristics

Information about wilderness users is fragmentary, reflecting the fact that it is both difficult and costly to collect. By means of on-site visits, interviews at entry points, self-registration forms on trails, and mailed questionnaires, Lucas, Stankey, and other have provided the rough profile of wilderness users summarized in Table 6.

An estimated 80 percent of Montana wilderness users are state residents.[4/] Users have quite different objectives, ranging from "purists" who seek a natural environment devoid of an human influences, to certain hunters or campers who would welcome vehicle access and modern visitor facilities. Despite the prohibition on vehicles and permanent structures, there is a wide "opportunity spectrum" which includes hiking, camping, hunting, fishing, scenic vistas, floating, photography, horseback riding, scientific study, solitude, and skiing. Wildernesses have other social uses as watershed, livestock range, and wildlife refuges. There are also commercial applications for outfitters and guides, film makers, writers, souvenir shops, and consumers who purchase their goods and services.[23/]

Except in the Bob Marshall and Great Bear wildernesses, most users do not utilize horses and pack animals. The majority visit these areas in the summer months, especially July and August. A much smaller number hunts there in the fall. Visitors represent a wide span of ages and incomes, but tend to be well-educated. The length of visit and miles traveled vary considerably from one wilderness unit to another, but roughly correlate with the size of the wilderness.

TABLE 6: Characteristics of Visitors to Montana Wildernesses, 1976

Area	Size: 1,000 acres	1,000 RVD* in 1976	% Montana residents	Age: % over 34	% College grads	% Earning $25,000 or more	Average party size	% on horse-back	% of use in July-August	% of fall visitors who hunt	% traveling over 10 miles	% spending over $20 daily
Mission Mts	73.9	47	74	47	47	27	4.5	2	80	21	11	24
Spanish Peaks	63.3	15	71	38	38	28	4.8	20	61	63	35	16
Cabinet Mts	92.3	20	75	33	23	16	4.0	7	75	42	12	7
Selway-Bitterroot	1337.9	196	39	43	36	27	4.5	20	66	79	61	25
Bob Marshall	1009.4	142	64	57	42	43	4.7	59	58	91	83	33
Scapegoat	239.3	41	86	40	27	21	5.6	18	74	87	68	12
Great Bear	286.7	26 (1974)	53	65	48	50	5.2	42	54	86	77	56
U.S. Population, 1976 (for comparison)				42	22	Family Income 18						

* Recreation visitor days. Combined RVD's for all Montana wildernesses in 1980 equalled about 700,000

Source: Adapted from 22.

CHAPTER 2: SOCIAL AND ECONOMIC EFFECTS OF OIL AND GAS OPERATIONS

The Scope of Effects

Oil and gas operations tend to occur in several, often overlapping stages, including preliminary exploration, leasing, exploratory drilling, field development, production (including pumping, transporting, and processing the oil or gas), and field abandonment (including reclamation). Because most leases do not yield oil or gas, the probability of field development and production is much lower than exploration and leasing.[26/]

When enough drilling has occurred to permit estimates of an area's reserves, it is feasible to project the schedule of activities, facilities needed, jobs to be created, and other economic prospects. The extent of the population influx and its implications for local housing, schools, utilities and services, and recreational facilities can also be estimated. These projections can be inferred from the mode of operation of the petroleum industry, the examples of communities that have previously experienced petroleum activities, and the unique social and environmental characteristics of each potentially affected wilderness location.

When leases are denied, no action beyond preliminary exploration is likely to occur because producers will have no assurance of profits from discoveries.. When leases are granted, but the petroleum reserves are unknown, the type, scale, and duration of effects are also unknown and can be discussed only in general terms; i.e., what might occur at one or more hypothetical levels of activity.

At this writing, neither the wilderness petroleum reserves nor the extent of future leasing, if any, is known. The analysis of effects must be limited to a hypothetical discussion grounded in the present social and economic situation of the potentially affected area.

Social Effects Variables

The desired outcomes of oil and gas development are a return to investors, additional jobs, and expanded fuel supplies. But large-scale operations in rural areas may also result in additional "social costs" of equal or greater significance than the "benefits" generated. For example, the degree of community stability, feelings of personal security and well-being, long-established lifestyles, or the quality of human relationships may be affected.

The type, scope, and intensity of these oil and gas impacts are governed by a number of social and economic variables, including:

1. The stages of oil and gas operations occurring: preliminary exploration, drilling, field development, production, transportation, and site abandonment.

2. The size of the discovery: the number of wells, whether oil and/or gas is produced, and the estimated volume of the reserves.

3. The pace of development: the number of companies, drilling rigs, etc., and the presence or absence of other types of development activities.

4. The existing community orientation toward mining or petroleum exploration and development: e.g., is this an appropriate use of the land?

5. The capacity of existing public and private facilities and services: whether there are a prior surplus or shortage and a potential for rapid expansion.

6. Company policy and selection of technology: the degree to which the operators are responsive to local human and environmental needs.

7. The personal factor: the kinds of effects particular individuals and groups experience, and whether gains or losses are perceived.

8. The effectiveness of State and Federal resource agency programs for administering oil and gas leases: are activities monitored and stipulations enforced?

9. The success of local efforts to grasp opportunities and avoid or ameliorate problems through informed planning and skillful management.

10. Changes in laws and administrative policies which govern access to public land and regulate the conduct of development activities.

Advance assessments of the social and economic impacts of future oil and gas activities are speculative due to the uncertain spatial distribution of potential oil and gas resources. Unlike hardrock and industrial minerals or coal resources--where development occurs in a relatively central location, often with known resource quantities--oil and gas resources are scattered across the land, unknown in amount. Exploration data are often confidential as each participating firm seeks to retain a competitive edge. Exploratory wells must be drilled to verify the presence or absence of oil and gas in commercial quantities.

Who Could Be Affected--and How?

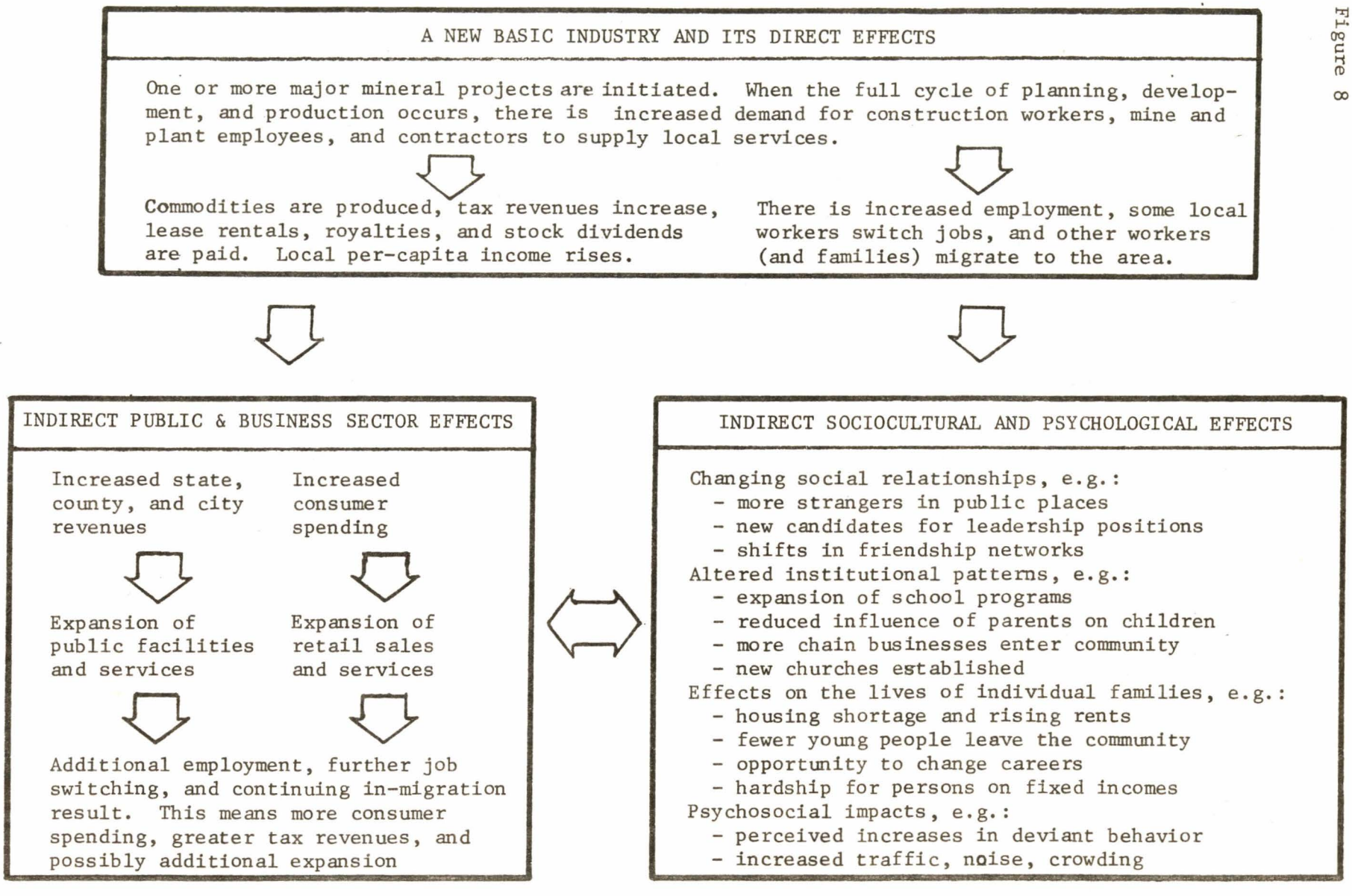
When leasing has occurred and exploration and development are underway, a pattern of effects will be evident, reflecting the "mix" of these variables. Figure 8 illustrates the chain of events that occurs as development is initiated, employment is expanded, the population increases, business activity increases, and community institutions are affected. Low levels of activity usually induce weak localized effects. Large-scale activities have local, regional, and national ramifications.[25/]

The nature of the social and economic effects varies with different segments of the affected population. In this analysis the following categories are examined:

1. Wilderness users
2. Local zone communities (Figure 1)
3. The socioeconomic region (Figure 2)
4. The Nation and State
5. Public expectations for wildernesses

Figure 8

Characteristic Social Effects of Industrial Development in Rural Areas


A NEW BASIC INDUSTRY AND ITS DIRECT EFFECTS
One or more major mineral projects are initiated. When the full cycle of planning, development, and production occurs, there is increased demand for construction workers, mine and plant employees, and contractors to supply local services.
Commodities are produced, tax revenues increase, lease rentals, royalties, and stock dividends are paid. Local per-capita income rises.
There is increased employment, some local workers switch jobs, and other workers (and families) migrate to the area.
INDIRECT PUBLIC & BUSINESS SECTOR EFFECTS
Increased state, county, and city revenues
Increased consumer spending
Expansion of public facilities and services
Expansion of retail sales and services
Additional employment, further job switching, and continuing in-migration result. This means more consumer spending, greater tax revenues, and possibly additional expansion
INDIRECT SOCIOCULTURAL AND PSYCHOLOGICAL EFFECTS
Changing social relationships, e.g.:
- more strangers in public places
- new candidates for leadership positions
- shifts in friendship networks
Altered institutional patterns, e.g.:
- expansion of school programs
- reduced influence of parents on children
- more chain businesses enter community
- new churches established
Effects on the lives of individual families, e.g.:
- housing shortage and rising rents
- fewer young people leave the community
- opportunity to change careers
- hardship for persons on fixed incomes
Psychosocial impacts, e.g.:
- perceived increases in deviant behavior
- increased traffic, noise, crowding

Effects on Wilderness Users

There are at least three sets of wilderness users, namely: individual, commercial, and indirect (vicarious) users. The first set consists of individuals and small groups visiting a wilderness for the recreational opportunities it provides. Options include fishing, hunting, hiking, camping, skiing, nature observation, scientific research, photography, horseback riding, river floating, and solitude. Local residents may also pick berries or other edibles or enjoy the scenic back drop most Western wildernesses provide. These users do not market goods or services.

Oil and gas activities could affect individual users when field operatons interfere with these recreation options. For example, some users would find the use of helicopters and explosives inconsistent with the wilderness concept. No doubt many users would be distressed by roading or pipeline construction, the presence of drill rigs and site facilities, the long-term use of trucks, or the temporary closure of some areas to recreation. Very likely some users would choose to visit less desirable or more distant locations. These possibilities are discussed at greater length in a separate EIS background document dealing with the types and intensity of wilderness recreation.

The social and economic profile presented earlier indicates that the retail and lodging sectors of many zone counties are quite dependent on recreational tourism expenditures. Any decrease in tourism would depress these earnings. Increased use of these tourist facilities by oil and gas employees could equal or exceed offset these losses, but the recreational preferences and service needs of oil industry employees would require some modifications in the services offered. Until the location and extent of oil and gas potential are known, these impacts cannot be projected for specific counties or wildernesses.

Oil and gas operations would affect the commercial users (i.e., outfitters and guides, float outfitters, and equipment rental businesses) similarly. Because outfitters also serve clients who value the solitude and pristine character of wilderness, any oil and gas activities could disrupt their businesses. Most clients are interested in fishing, hunting, photography, nature study, and unique wilderness experiences. The ability to administer the oil and gas operations to minimize conflicts with these objectives will influence the number of clients who will either temporarily discontinue their use in a particular area or terminate it altogether.

If client use is reduced by oil and gas operations, the income earnings of the outfitter and guide industry would decrease, and the expenditures by clients on food, clothing, lodging, and supplies in the local zone would decline. These changes would again be felt by the local retailing and lodging sectors dependent on such recreation and tourism expenditures, but could be offset by increased oil industry patronage, at least during the early development and construction phases.

Many indirect (vicarious) users and conservationists support wilderness preservation because they enjoy films and articles about wilderness experiences, or see designated wilderness as essential preserves for certain plants or animals that would not otherwise survive. If wilderness leasing and production occurred, some conservationists would object to the simultaneous development of

all of the Nation's nonrenewable resources without sufficient concern for future generations. If oil and gas development occurred in a particular wilderness, some indirect users would perceive a deterioration in the wilderness quality and have serious doubts about the feasibility of restoration after 20 to 30 years of production.

There would be related psychological and social costs (sometimes great, but difficult to appraise in dollars) for millions of environmentalists, including wildlife and wilderness supporters. Some would become disillusioned, thinking wilderness preservation is a futile effort in a consumption-oriented society. Others are likely to increase their efforts to promote public support for wilderness preservation, while also attempting to thwart development through legislative or court action.

Some university and agency scientists have emphasized that other wilderness uses (such as research, watershed or wildlife habitat) should also be considered in any decision affecting the wilderness resource. Although it is difficult to attach a monetary value to these uses, these individuals place a high value on protecting the nation's remaining, relatively unmodified natural ecosystems for scientific study, dispersed recreation, preserving rare species, and other compatible activities.23/ If some of these uses were curtailed by oil and gas activities, other recreational uses of economic importance (e.g., observing rare species, hunting, or fishing) could be diminished along with the quality of the wilderness itself.

The extent of oil and gas operations in wildernesses, and how well these activities can be administered and monitored, will influence the degree to which some users are impacted. Remoteness and rough terrain will discourage drilling. Along the bottoms of drainages where many oil and gas activities are likely to occur, some users would be temporarily impacted, the extent and duration depending upon the size of the discovery. Explored drainages that lack oil or gas could promptly be restored. Other drainages may prove to have either oil or gas in commercial quantities and previous uses could be impacted for several decades.

The question at hand is: what is the appropriate social response to the risks associated with the use of a protected natural area environment for developmental purposes? The examples above indicate that there are uncertainties as to the amount of welfare loss individuals would experience and the effectiveness of restoration. Recreational use by individuals could be jeopardized, but there is also the risk of impacting wildlife, impairing scenic amenities, and disrupting unique natural ecosystems. However, all of this must be matched against welfare gain to both individuals and society from any oil and gas production. If oil and gas activities occur there is also a risk of a future welfare loss (wilderness). If no oil and gas activities take place now, all future options are still open until we no longer have a market for oil and gas.20/

Local Lifestyles and Institutions

Any major mineral development program has quality of life implications, both positive and negative. Even though the oil and gas operations discussed in this analysis would be conducted on uninhabited lands, they would be extensions of off-wilderness operations. The social impacts that would be generated in this case relate primarily to these factors:[26/]

1. An influx of newcomers from other parts of the country, especially when very rural areas are involved,
2. The introduction of a new and complex technology with a potential for noise, air pollution, accidental spills and fires, and other environmental impacts, and
3. The fact that the proposed sites for exploration and development are in designated or prospective wildernesses.
4. The possibility that simultaneous wilderness and nonwilderness operations will increase the level of adverse effects for local communities.

Population growth and technological innovations can greatly increase the rate of social change. The effects are most profound when large-scale activities occur in very rural areas and there has been insufficient planning to anticipate and mitigate unwanted impacts. More often, oil and gas activities are modest in scale and potentially manageable. Rapid, extended growth can alter community institutions, affect traditional land-use patterns, overload local facilities and services, result in housing shortages and encourage uncoordinated real estate development. It can disrupt established social relationships, create hardships for persons on fixed incomes, and generate anxieties among residents who resent the changes and feel powerless to do anything about them.[27/] Figure 9, based on a review of existing studies of rapid development, summarizes the scope of possible changes at the local level.

State and Local Governments

Leasing and subsequent development would increase both costs and benefits for state and local governments. State costs include environmental protection (monitoring air and water quality; protecting wildlife), increased transfer payments to affected counties, and expansion of state facilities and services to accommodate additional residents. State benefits derived are the increased revenues from the oil and gas severance tax, the 50 percent state share of rentals and royalties collected by the Federal government, and additional income and excise taxes (Table 8, p. 34, summarizes economic benefits).

The local county expenditures will increase as a result of oil and gas activities because incoming residents require many social services (e.g., education, police and fire protection, use of roads for access, and water and sewage facilities). Counties receive increased revenues from property taxes, transfer payments from the state, and various special use fees. Counties usually experience greater additional costs than benefits at first, but after several years the revenue increases more closely approximate or may exceed the added expenditures. Very rural counties with relatively few taxpayers and the need to construct many additional roads and facilities will face the most serious impacts.

The economic burden of development is often greatest for the cities. Most inmigrant workers and their families prefer to reside in towns and cities. Municipal utilities and services must be expanded to accommodate them. There

Figure 9

Some Possible Social Consequences of Rapid and Extended Change for Community Institutions

Individuals and Family Groups	Quality of Neighborhood and Community Life	Schools, Churches, Voluntary Associations	Community, County Government	Social Aspects of the Economic Sector
Shortage of adequate housing; inflation of prices and rentals	With continuing in-migration, greater racial, cultural, and lifestyle diversity	New churches established; greater variety of denominations and sects	Political activity more intense, competitive; wider participation	Decline in production due to absenteeism; employee turnover due to worker out-migration
Local inflation surpasses national average, creates hardship for persons with fixed incomes	Increased support for newer, less conventional social and cultural activities in the community	New challenges to conventional morality and established customs of existing groups	Public services overburdened: police, fire, libraries, hospital, jails, juvenile home, social services, parks, swimming pools	TV cable, telephone, power companies unable to meet hookup demands
Greater incidence of anxiety, mental illness, alcoholism and other drug abuse, and suicide	Improved social and employment opportunities for women and minorities	Organized groups oriented toward conservation and environment or resource development become more prominent	Increased traffic, street damage; inadequate parking; abandoned cars	National chains open branch operations; some small businesses are displaced
Increase in the frequency of divorce, separation, remarriage, and illegitimate births	Decline in the effectiveness of informal community controls and an increase in formal/-legal relationships	Crowded schools; demand for more classrooms, buildings, personnel (25-30 percent of all newcomers are school children); more competitive athletic teams and other groups; also more difficult to join	Public utilities insufficient: water, sewer, and power generation facilities	Shortage of responsible professionals and technicians: doctors, lawyers, dentists, TV repairmen, carpenters, mechanics, electricians, plumbers
Improved job opportunities, especially in rural areas	Multiple-family occupancy of some single-family dwellings; other makeshift living arrangements	Social clubs and lodges gain membership; new leadership patterns may emerge	Uncoordinated real estate development	Loss of trained employees to higher-paying jobs
Greater percentage of mothers employed outside of home	Increases in most categories of adult crime and juvenile delinquency; more people lock their homes and cars	Some shifts in relative prestige and influence of different organizations	Revenues for expanding facilities either very inadequate or 2- to 3-year lag behind needs	Rising unemployment: boom gets national publicity and excessive in-migration of jobless
More frequent abuse of spouses and children	Greater competition for and utilization of recreational facilities	Conservation groups increase their activity and prodevelopment factions often respond with public relations programs	Time and money required to plan and channel future development	Retail outlets unable to handle business volume with former courtesy and efficiency; loss of valued employees to energy jobs. Real estate, construction, mobile home, vehicle dealerships, other growth-related businesses thrive
Some young people drop out of school to take well-paid jobs	Realinement of friendships as new issues generate cleavages and new contacts permit alternatives	New voluntary organizations form to deal with selected effects of development	Possible increases in litter, animal control problems	Income redistribution due to higher rents, wages, profits, and land values; some people gain, and others lose
Increase in the percentage of single male adults, at least during initial phases of activity	Increased noise, pollution of air and water; more litter on streets, sidewalks, and highways		Long-range prospect of gains in per-capita revenues	

Source: 25

are increased capital investments and manpower requirements for water service, sewers, streets, sidewalks, law enforcement, fire control, parks, and sanitation. Schools must add teachers and classrooms. When a local government borrows money to expand public facilities but the petroleum "boom" is small-scale or brief, it may be difficult to complete payments on the long-term loans.

Sometimes, oil and gas companies with operations in the area provide various subsidies to assist local governments during the initial expansion phase. This additional income helps improve and expand local social services at a rate more closely commensurate with the demands made on the community by oil and gas activities. Frequently the increased municipal revenues derived from property taxes and county transfer payments do not offset the development-related costs. Many mining and construction workers live in mobile homes or motels and are not required to pay substantial property taxes. Private utilities and services (e.g., electrical power, telephone, airlines) also extend their services, but their increased revenues should equal or exceed costs in the long run.

Local and Regional Economies

The economic impacts of particular activities on a local or regional economy are often assessed using an input-output model. Because specific output quantities of oil and gas have not been forecasted, but are essential data for an input-output model, this mode of analysis is not feasible. Instead this analysis will be qualitative in design.

In the two western sectors of the local zone where there is not yet any oil and gas production, long-term growth (i.e., population, nonfarm earnings, per capita income) has been steady. Growth has been maintained by export industries like wood products, primary metals and tourism. Although the area is currently in a serious slump, recovery should occur when interest rates decrease enough to stimulate building construction. Any new basic industry like oil and gas would strengthen these economies, providing new jobs and income earnings. Butte, Anaconda and Missoula are currently trying to attract more basic industries. Butte has been mentioned in the press as a possible center of future oil and gas operations in southwestern Montana due to its central location, varied support services, and skilled labor force.

The oil and gas potential of the two western sectors is still unknown. If discoveries occur, wilderness oil and gas development would be in addition to any other simultaneous development on other Federal, state or private lands and could add to the total benefits and costs generated by these operations. Because of the current availability of additional drilling rigs, exploration and development could be expanded rapidly.

If the reserves are extensive enough for large-scale production, a few years would be required to drill additional wells, build storage facilities, construct roads and pipelines, and erect processing plants for removing impurities. During this period, construction and drilling activity could be widespread. There would be some local jobs created but little or no royalty income or earnings from production. Production would follow for perhaps 20 to 30 years, providing royalties and tax revenues, but reduced employment once the fields and pipelines are completed.

The two eastern sectors already have an established oil and gas industry. In addition, Forest Service and industry sources now perceive a higher potential for oil and gas here than in the west. Oil field support services are already established in the eastern slopes and pipelines connect existing fields with oil refineries and gas plants. Thus expansion of this activity could occur relatively quickly and improve prospects for employment, income, and local business activity in several of these counties.

In December 1981, crude oil averaged more than $30 per barrel (cost to refiners) and industrial consumers were paying $3.40 per 1,000 cubic feet of gas. At these prices, one or two large oil fields [26] may produce 50 million dollars worth of oil and gas annually for a total of more than a billion dollars added to the national economy during the life of the fields.

Generally, the total national and regional dollar benefits are much greater than the local earnings (although other social effects are more noticeable locally). Oil and gas operations are capital intensive and a significant portion of the expenditure for the oil and gas equipment, supplies, and management skills is made outside of the local area economy. In the case of seismic exploration and exploratory drilling, all the expensive equipment, managerial skills, and much of the labor are brought in from outside the local area and move to another location when the job is finished.

When a wildcat well costing $10 million is drilled in a rural location, normally only a fraction of this money is circulated through the local economy. Similarly if production occurs and the oil and gas are shipped to a destination outside the local zone for refining, most of the sales from the products are not circulated through the local zone economy. Only when extensive drilling occurs, or a refinery or gas plant is built locally, will the local economy experience major economic gains. Even then, much capital will flow out of the area to suppliers, stockholders, absentee landowners, state and Federal governments, and to finance corporate expansion in other parts of the country.

Table 7 provides a guide for assessing local economic and social impacts. The amount of growth which oil and gas activities can contribute to these local economics should be kept in perspective. In the early phases of oil and gas exploration, the economic impacts are relatively small even though there exists a relatively high probability that these activities will occur. The major local economic impacts are from the wages and salaries spent by oil and gas employees, many of whom are transients from other areas. In some cases where extensive earth moving, road construction for accessing sites, or hauling are required, this work might be contracted out locally, providing additional local income and employment. The major direct economic impacts would be a portion of the payroll of local workers and some of the lease rental income. These expenditures could generate some secondary jobs and income earnings.

When a field discovery is made, the local economic impact would depend upon its size. The table indicates that although the probability of such a discovery is low, the local economic impacts would increase sharply during this phase. Some of the reasons would be: greater number of workers involved in the activity; total wages and salaries would increase; and more in-migrant workers and their families would generate a greater number of secondary jobs and earnings income. This phase would last anywhere from 2 to 10 years or more, depending upon the size of the discovery.

TABLE 7: Local Economic and Demographic Effects of Various Oil and Gas Activities

NORMAL SEQUENCE OF OIL ACTIVITY (with some events occurring simultaneously or overlapping in sequence)	SELECTED EVENTS THAT MIGHT OCCUR AT THIS STAGE OF ACTIVITY Consider that: 1. Several companies may operate simultaneously, thereby increasing total effects. 2. Each company may conduct two or more activities or use several crews simultaneously.	PROBABILITY THIS ACTIVITY WILL OCCUR IN A SPECIFIC LEASE BLOCK OF ABOUT 10,000 to 25,000 ACRES	EXPECTED DURATION OF THIS STAGE (years)	NUMBER OF EMPLOYEES IN THIS STAGE OIL ACTIVITY	NUMBER LIKELY TO BE HIRED LOCALLY (including commuters) if available 4/	ANNUAL PAYROLL OF OIL EMPLOYEES ($ in 1980)	NUMBER OF LOCAL SECONDARY JOBS LIKELY TO BE INDUCED 2/	APPROXIMATE ANNUAL PAYROLL ($) OF SECONDARY EMPLOYEES AT AVERAGE INDUSTRY WAGES (1980) 3/	TOTAL IN-MIGRATION OF OIL INDUSTRY WORKERS AND FAMILIES 5/ (excludes locals, commuters)	SECONDARY WORKERS AND THEIR FAMILIES 6/	NUMBER OF ADDITIONAL HOUSING UNITS NEEDED	NUMBER OF ADDITIONAL SCHOOL CLASSROOMS NEEDED 7/	COMMENTS ON THESE GENERALIZATIONS	CAUTIONARY NOTE
Preliminary Exploration	Two seismic crews, transported by trucks or helicopters, explore subsurface features	Almost 1:1	1 to 2 years (8-month season)	50 to 60	10 to 20	800,000	5 to 10	100,000	60	70	20 to 30	0	o Some crew members live in their own mobile homes or recreation vehicles; most are not accompanied by families. o May occur before or after leasing. o Lease rentals are collected whether or not exploration occurs.	The estimates on this chart are arbitrary. Accurate estimates of future oil activity in undeveloped areas are impossible due to variations in the number, size, and distribution of fields, corporate policies, terrain, population density of the area, local wage levels, etc.
Exploratory Drilling (one wildcat well)	One drill rig with three to four crews, plus truckers, suppliers, and road and site contractors	First well 1:4	6 months	50	10	600,000	10 to 20	250,000	60	80	25 to 35	0	o Local hire factor varies with type of activity, company policy, number of suitable persons available locally, etc. (footnote 2). o This phase occurs only if prior exploration results are favorable.	
Additional drilling leading to discovery of oil and gas	Access roads built; oil rig relocated; total of four wildcat wells drilled	1:10 Discovery	2 years	50	15	1,200,000	30	450,000	70	105	40 to 50	0		
Development: Small Field; e.g., 2 to 10 wells	Two deep-drilling rigs used; construction of access and connecting roads, pad sites; tanks, pits installed; support hired services contracted.	1:50 to 1:100	2 to 3 years	80	20	2,000,000	50	750,000	120	180	60 to 70	1	o Experienced rig crews preferred; normally little local hire. o Support crews must also be brought into very rural areas. o Costs dictate that rigs operate 24 hours daily, year-round when possible. o Other firms may be developing other fields in the same Forest. o Less rigs operating more years could develop a large field.	
Medium Field; e.g., 10 to 50 wells	As above, with four rigs; construction of central tank battery, gathering lines	1:150 to 1:300	3 to 6 years	125	25	3,000,000	100	1,500,000	200	325	110 to 130	2		
Large Field; e.g., 50 to 150 wells	As above, with eight rigs, construction of gas and oil treatment facilities	1:1000	5 to 10 years	250	50	6,000,000	250	3,750,000	400	710	240 to 270	4		
Pipeline Construction	Volume of production justifies new pipeline. Construction and support crews needed. 1/	1:100 to 1:200	1 to 2 years	100 to 300	50 to 100	100,000 to 1,000,000 locally	25 to 75	750,000	75 to 300	125 to 400	35 to 120	1	o Pipeline transport oil and gas to processing facilities and/or markets. o Pipeline construction crews migrate as new sections are added to a long line.	
Pipeline operation	Pipeline operation and maintenance crew	same	40	20	10	600,000	15	225,000	25	40	12	0		
Production: Small Field	Field maintenance crew and support personnel are needed: repairmen, truckers, pumpers, custodial personnel	1:50 to 1:100	20	5	3	100,000	7	100,000	5	15	5	0	o Field crew size varies with field size, the extent of local processing of gas or oil, the type of equipment (gas engines require more attention than electric motors), and other factors. o Field life may be extended by new wells or by using special techniques to increase well yield.	
Medium Field	Development and production phases overlap	1:150 to 1:30	30	10	6	200,000	15	225,000	10	30	9	0		
Large Field	Development and production phases overlap	1:1000	40	20	12	400,000	30	450,000	20	60	18	0		
Gas Processing Facility Construction	Volume of gas justifies plant. Construction of plant to remove gas impurities 1/	1:150 to 1:300	8 months	100	50	2,500,000	100	1,500,000	100	225	68	1	o Gas in quantities too small to sell may be burned or used as a field power source. o Sulfur compounds in gas are poisonous and corrosive.	
Operation	Plant operation and maintenance	same	30 years or more	40	25	1,000,000	60	900,000	35	110	32	1		
Oil Refinery Construction	Volume of crude oil produced justifies a new refinery Large construction force required	1:2500 to 1:5000	2 to 4 years	500 to 800	200 to 300	15,000,000	400 to 500	6,500,000	800 to 1,200	1,300 to 1,800	390 to 540	7 to 10	o Modern trend is toward large refineries; newer designs require less personnel than formerly.	
Operation	Refinery operation and maintenance	same	30 years or more	200	120	4,000,000	300	4,500,000	200	575	167	4		
Field Abandonment and Reclamation	Requires bulldozer operators, securing and capping wells, landscaping and seeding	1:1, if developed	1 to 6 months	VARIABLE 2 to 20	VARIABLE 2 to 20	20,000 to 100,000 or more	2 to 15	120,000	0 to 10	0 to 20	0 to 6	0	o Federal and State lease agreements now require reclamation of abandoned holes and fields; wells may be converted to water sources.	

1/ Large, temporary construction crews may not generate much local secondary employment; there are limits to how rapidly facilities and services can expand or will expand to accommodate temporary employees.

2/ The employment multiplier varies with the scale and duration of the activity, company hiring and salary policies, and the local availability of workers with appropriate skills. In general, it will be higher for larger communities which have the most available workers, can fill many contracts for services, can house many in-migrant workers, and can offer a wide array of consumer goods and services.

3/ As oil and gas operations increase in scale and intensity, it becomes economically feasible for additional businesses and industries to locate in the vicinity, thus increasing the ratio of secondary employment.

4/ Assuming an ample supply of local workers is available. In sparsely populated areas, this figure could be much lower.

5/ Assuming there will be an average of 0.5 to 2.2 dependents per worker depending on stage and duration of the activity in a given locality.

6/ Assuming half of the employees move to the community from another location and average 2.0 to 2.5 dependents per worker.

7/ Depends on current class size in existing schools. In general, one classroom meets the needs of about 160 in-migrants (including workers plus their families).

Source: Wenner,L.N. (1981). Social and Economic Assessment of Oil and Gas Activities: Information and Guidelines. U.S.D.A. Forest Service Northern Region R1 81-01 p.84 (12).

Once the development activity is complete, it requires little labor to actually remove the oil and natural gas from the ground. Table 7 shows that the local economic impacts once again return to a modest level. However, if there is a series of large field discoveries, gas plants, major pipelines, and/or an oil refinery might be constructed. There could be many new jobs created, both in the petroleum industry and in the retail sales and services sectors. When oil and gas development occurs on this scale, the economic boost will be felt in regional as well as local market centers.

Table 8 summaries the economic benefits that governments and the business sector receive from petroleum exploration, development, and production.

TABLE 8: Potential Revenues and Income from Petroleum Operations on National Forest Lands

Government Revenues

Federal Level

Windfall profits tax of 30 to 70 percent of the amount oil exceeds a base price.
Corporate income tax of 40 to 46 percent of taxable income.
Individual income taxes of 17 to 21 percent from additional basic and secondary income earnings that are taxable.
Federal excise tax increases (on sales of gasoline, tires and other taxed items).

Agency collections:

1. Rentals of $1 to $2 per acre, more when competitive leasing occurs.
2. Royalties of 12.5% of the value of oil and gas production in all new deposits.
3. Exploration fees (Custer National Forest examples)
   - $50 per shothole for truck-based seismic work
   - $80 per mile for surface charges, truck-supported
   - $60 per mile for vibroseis work, truck-supported
   - $40 per mile for helicopter supported seismic work
4. Filing fees, usually $25 per lease.
5. Annual-use fees (Custer NF examples)
   - use of class D road, $208 per mile
   - oil or gas pipeline, $240 per mile
   - pumping station site, $50 acre
   - salt water injection, $.05 per barrel
   - telephone and powerlines, $2.50 per pole
   - power substation site, $65 per acre
   - buried power or phone lines, $150 - $200 per acre
   - H frame powerline, $250 minimum per structure
6. No charges are levied for installations on the lease proper.

Table 8 (con't)

State Revenues

Oil and gas severance tax (Montana) on gross value of production, oil at 5 percent and 2.65 percent for gas.
Oil and gas production tax (North Dakota) 11½% of gross value of production.
Increased income and excise tax collections due to new payrolls in state.
Increased sales tax receipts (North Dakota).
Return to state of 50 percent of Forest Service mineral receipts from public domain lands.
- Montana: these funds are used for highways (37½%) and education (62½%).
- North Dakota: funds go into the state general fund and are largely earmarked for education.

Net proceeds tax on oil (average at 13%) and gas (average at 14%) produced in Montana.
Increase in routine fees collected and licenses issued.
Ad valorem tax (on property) averaging 2 to 3 percent in Montana.
Conservation tax of 0.02 of gross value of Montana production.
Montana Resource Indemnity Trust Fund tax of 0.005 of gross value of production.

Local Government Revenues

County real estate tax receipts increase with property values.
County personal property tax receipts increase.
Increase in licenses and permits issued, fees collected.
Forest Service distributes 25 percent of surface-use fees collected to counties with National Forest lands.
Redistribution of National Forest minerals revenues payments by states.
- Montana: Payments for education are made to counties (whether or not oil is produced) using the equalization formula.
- North Dakota: 25 percent of revenue (from acquired lands) is paid directly to the counties where production occurs.

Redistribution of a portion of the state oil and gas severence (production) tax.
- Montana: Net annual increases are returned to producing counties as impact aid.
- North Dakota: Part of the tax is returned to producing counties for roads, schools, and city aid.

Grants (state, federal and private) can be obtained to assist communities in expanding facilities and services to accommodate additional people.
Receipts from state property and net proceeds taxes.

Table 8 (con't)

Private Economic Benefits*

National Level

Increased business activity, including the manufacture of drilling equipment, pipeline, trucks, and supplies, the construction or installation of production facilities and the administration of petroleum operations.
Greater availability of domestic oil and gas supplies and possible reductions in imports.
Dividends to investors in the petroleum industry.
Increased employment in participating manufacturing and petroleum production operations.
Additional demand for long-distance freight hauling, household moving, and pipeline transport.

Regional Level

Increased business activity, including seismic exploration, field development, and the construction of roads, pipelines, and power facilities. For regional market centers, increases in wholesale and retail sales, and an expanded demand for business and personal services.
Convenient sources of crude oil and gas for regional gas plants, refineries, pipeline companies, and petrochemical industries.
Increased employment with drilling firms, road and site constractors, and oil field service companies. More jobs in a variety of secondary fields; e.g., in medical services, education, retail sales and services, business and residential construction, transportation and communication, environmental protection, and other fields.

Local Level

Increased business activity for local stores, banks, service firms, utilities, bars and restaurants, motels, etc.
Expanded employment opportunities in both the petroleum industry and various support occupations, including teaching, medical services, social programs, and law enforcement.
Improved market for real estate, new houses, mobile homes, and rental housing.

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* Based on major discoveries and an extended period of development and production of oil and gas in National Forest wildernesses. Excludes additional effects from development on adjacent state and private lands.

National Implications

The national zone is analyzed the least because the social and economic effects are widely dispersed and often quite subtle. The national repercussions of oil and gas activity would be most noticeable if there were a series of large discoveries, although any large discovery of either oil or gas would provide consumers with more fuels and help reduce U.S. dependence on foreign oil.

With massive production, corporate income could rise, employment could increase in those locations where national operations were expanded, and stockholder dividends could increase (table 8). This would also mean an increase in federal tax receipts from the additional corporate income and royalties. The costs to the government of administering oil and gas leases and monitoring production operations could also increase.

The oil and gas production in the Region's wildernesses would cause conservationists nationwide to be concerned with the physical impacts on the flora, fauna, air, water, and soil. Social and natural scientists would be concerned about the loss of nonrenewable resources, wildlife impacts, the shrinking of remaining wilderness ecosystems, and the depletion of a finite mineral resource rather than placing more emphasis on conservation.

Public Expectations for Wilderness

"Social" impacts also include public reactions to the prospect or presence of development activities. These insights provide the basis for many of the issues that must be considered in an environmental analysis.

Citizens' perceptions and attitudes about wildernesses and the natural environment were assessed by the writer. Sources included 1977-1982 state and national surveys, public responses to several USDA-Forest Service environmental documents (including four focusing on wildernesses), magazine and journal articles, interview notes, and other sources. It is understood that some of these sources do not provide a representative sample of the public, but do provide a greater breadth of perspective than a single public involvement process.

Most Montanans and half or more of the people of the U.S. who have been surveyed (attachment 2) are very protective of the nation's remaining wildernesses. Almost all Montana respondents to Forest Service requests for public comment on leasing proposals oppose both exploration and development in designated wildernesses. Many advocate similar restrictions for proposed wildernesses and wilderness study areas, at least until Congress has determined how such areas will be allocated.

Most EIS commentors perceive petroleum or mining operations as inconsistent with the wilderness concept, as potentially harmful to other wilderness resources, and as detracting from established and appropriate wilderness uses. Numerous national, regional and local organizations both philosophically oppose and have or could be expected to resist wilderness oil and gas leasing and development. However, some respondents favor some level of wilderness exploration and development and provide economic or legal perspectives to support their position.

Table 9 summarizes six recurring themes in the public responses described above. In each case the theme has been phrased as a question followed by a selection of public comments that agree and disagree with it. Because the sample is not representative, no attempt is made to estimate the percentage of respondents who support each viewpoint. It should also be noted that people who have strong convictions about an issue tend to respond, whereas others who have less definite or intense views are less apt to send us letters or response forms, or make their views known in other ways. Thus many comments either favor or oppose a given project or take sides on an issue.

One purpose of table 9 is to convey in summary fashion the broad range and considerable complexity of public reactions to the prospect of wilderness leasing. Some of these responses suggest courses of action that exceed what is legally or traditionally within Forest Service jurisdiction. The table also provides additional guidance in selecting an appropriate range of EIS alternatives.

TABLE 9: Some Recurring Viewpoints about Oil and Gas Development in Wildernesses*

QUESTION I. Is the national energy need serious enough to warrant oil and gas leasing and development in designated or pending wildernesses?

Yes, oil and natural gas supplied over 70 percent of the Nation's energy in 1980, with a rise in imports from 19 to 47 percent between 1960-1979. This has contributed to increases in energy costs, inflation, and the U.S. international payments deficit. It has made this country more vulnerable in time of international crisis. At the least, we should explore our wilderness areas to learn their oil and gas potential for future use.

No, designated wilderness is a diminishing, fragile, irreplaceable resource, currently about 1 percent of the land base of the 48 states. Oil imports have decreased sharply since 1979 and the U.S. has sufficient supplies of natural gas, the major energy source expected in the Montana Overthrust. Oil imports extend the life of our domestic sources, which remain in reserve for future use.

QUESTION II. What are the legal rights of the oil industry in designated wildernesses?

The same as other public lands: The Wilderness Act specifically permits exploration and development until 1984, subject to reasonable restrictions to protect other resources. Active leases may be worked beyond that date.

Subordinate to wilderness values: Leasing is at the discretion of the Secretary of Interior. The Wilderness Act and other protective legislation (for air, water, and wildlife) require that such areas be managed to retain their wilderness character. Leasing can be denied when any of these values is threatened.

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* Sources of these viewpoints are described on the preceding page.

Table 9 (con't)

QUESTION III. Can oil and gas operations be compatible with wilderness values and uses?

Yes, the petroleum industry has highly efficient technology that can meet environmental standards, the public agencies provide appropriate protective stipulations, and only a small portion of the wilderness acreage is likely to be roaded and used for sites. Near-perfect restoration is possible.

No, petroleum activities once started are difficult to control. Often resource agencies budgets and staffing do not keep pace with expanding oil and gas operations. The larger wildernesses (being prime areas for the recovery of endangered wildlife species) could be fragmented. Industry employees are not closely supervised and accidents, lease violations, and poaching could occur. Depleting and reclaiming a large oil field may require 40-50 years.

QUESTION IV. Do the social and economic benefits of wilderness petroleum development exceed the costs?

Yes, oil and gas may be worth billions of dollars, providing jobs, investment dividends, tax revenues, and royalty payments to government. New oil and gas reserves will assure future supplies to Montana refineries. The nation would be more energy self-sufficient. There would be more jobs and increased business activity for affected local communities.

No, Oil and gas development would jeopardize wilderness values, create new costs for local residents and disrupt their lifestyles. Affected local populations bear most of the external costs, whereas the major share of the benefits accrue to outsiders. Many leases, for example, are held by speculators who may have no other concern for the area and would not have made the investment if Federal rentals and royalties were on par with those collected for private leases.

QUESTION V. Do designated wildernesses "lock up" resources and deprive people of the use of these lands?

Yes, wildernesses are mainly accessible to healthy young people or the wealthy. They are a single-use resource where marketable timber and minerals are wasted, if not used. Such land areas provide relatively few jobs and produce little public revenue.

No, wildernesses are used by a rough cross-section of youths, adults, and middle-aged people, with all income levels represented. Their present recreation, scientific, species preservation, and watershed functions are very valuable. Unmined minerals are available to future generations. The U.S. is among the few nations with the foresight to set aside wildernesses.

Table 9 (con't)

QUESTION VI. Are conservation and alternative fuel development preferable to wilderness oil and gas development?

Yes, in the U.S. an estimated 10-30 percent of petroleum consumption is wasted due to unnecessary vehicle travel, poorly insulated or overheated buildings, unused lighting and throwaway products and packaging. Conservation and increased use of sun, air, and water energy sources would greatly reduce the need for polluting fossil fuels.

No, years will be required to develop alternative fuel technology for widespread use. Meanwhile, a growing population requires a dependable supply of fuel for home, industrial, and commercial use. There is no very equitable way to reduce U.S. consumption of fuels.

Summary and Conclusions

The social and economic effects of oil and gas operations are highly variable and difficult to predict. The type, scope, and intensity of these impacts are a function of several factors including the: stage of such operations; size of the discovery; the pace of development; existing community orientations toward petroleum activities; company policy; and the effectiveness of state and Federal resource agencies that administer such operations. Low levels of activity induce small localized effects, but large-scale activities can have local, regional, and national ramifications. "Boomtowns" result when the rate of development is so rapid that affected communities are unable to provide the necessary facilities and services.

Economic and sociological concepts and analyses are useful for estimating: (1) resource demand and supply; (2) opportunity costs; and (3) the incidence of costs and benefits. Because there is a lack of information concerning specific quantities of oil and gas in the study area, it is not possible to estimate the likely costs of producing oil and gas. This makes it difficult to appraise the overall market impact of oil and gas development. Unless there is a very substantial discovery of oil and gas in the study area, the price and/or supplies of oil and gas would hardly be affected (i.e., a U.S. production increase of a fraction of 1 percent would not seriously affect the national market situation).

The opportunity costs and the incidence of the costs and benefits of allowing oil and gas activities in Northern Region wildernesses were estimated in a qualitative manner. It seems plausible that as oil and gas operations increase, fewer individuals including clients of outfitters and guides would use affected portions of the study area for primitive recreation.

The seriousness of these effects depends on the scale of the operations and the extent of conflict with traditional uses. Most likely, some individuals and/or outfitter and guide businesses would not be impacted, others might be temporarily affected, and some people might permanently discontinue their use of certain areas. Because most users are from the local zone and spend their income earnings on goods and services related to recreation, any decrease in use would result in less recreation/tourism earnings to the retailings and lodging sectors which are dependent upon these expenditures (although increased use by petroleum workers could offset this at least in the short run).

The opportunity costs for the indirect (nonvisitor) users should also be considered. If oil and gas operations cause these users to perceive a deterioration in the wilderness quality, the social and economic value of affected wildernesses is in effect reduced at least for the duration of those operations. Because this group may include millions of users, this loss in "option value" could be substantial.[2/]

Oil and gas operations would help boost local economies in the short term by providing additional income earnings to the retailing and lodging sectors. In the long term, if sizeable discoveries are made, new income earnings generated could be substantial locally, regionally, and nationally. This could offset or exceed any decline in income earnings that would be attributed to a decrease in recreational use. An extended period of increased economic benefits would be

necessary to justify the expansion of permanent facilities; e.g., schools, hospitals, shopping malls, public utilities, or apartment complexes. It cannot objectively be determined if the benefits from oil and gas operations would offset any loss in value of nonmarket, but highly-valued wilderness resources and attributes, such as endangered and threatened species of animals and plants, scenic resources, and solitude.

Another consideration is whether the benefits from oil and gas would offset any social/cultural costs to local communities which individuals, various private organizatons, and governments would experience. These include the need to expand existing facilities and services to accommodate newcomers and the problems and stress that may result from extended, rapid change. Finally, any oil and gas activities would provide increased tax revenues to the counties and state, and if production occurred, additional taxes and royalties. Government administrative costs would also increase as oil and gas activities increase.

The extent of any oil and gas activities might be restricted by the public where strong wilderness sentiments exist. This might be done through local protest, letters to congressmen, or by providing monetary donations to organizations interested in protecting the Nation's wildernesses.

The debate over wilderness preservation is a debate over values and cannot be resolved solely by market principles. The values represent conflicting viewpoints toward nature and the utility of the environment for humans. One orientation views nature instrumentally as a source of commodities, hiking opportunities, or research projects. The environment is there for human use. The other views nature as a complex, delicately balanced physical and biological process upon which all life depends. It is intrinsically valuable, contributing to more durable human needs than barrels of oil or cubic feet of gas.1/

The question is how and when the nation will use its remaining wilderness resources. Professional social scientists cannot decide how conflicting values over wilderness allocation should be weighed, unless some goals are given priority and others are set aside. Decisions about wilderness preservation stem from social value judgments which are shaped into public policy by our political institutions. Decisions either to preserve wilderness or develop it, are reflections of our country's culture,20/ but we nevertheless have some discretion in our selection of alternatives.

Attachment 1

REFERENCES

Item

1. Irland, L. C., Wilderness Economics and Policy, Lexington, Mass.: Lexington Books, 1979.

2. Krutilla, J. V. and A. C. Fisher. The Economics of Natural Environments: Studies in the Valuation of Amenity and Commodity Resources, Resources for the Future, Inc., Baltimore: John Hopkins University Press, 1975.

3. Marans, Robert, Don Dillman, and Janet Keller. Perceptions of Life Quality in Rural America. University of Michigan Institute for Social Research, 1980.

4. Norgaard, J. K., Tom Kovalicky, and George Stankey. "Wilderness Myths" in Montana Magazine, July-August 1979.

Montana Business Quarterly, Winter 1980.

5. "Travel and Tourism in Montana," by Bruce Finnie.

6. "Recent Trends in the Butte-Anaconda Economy," by Paul Polzin.

Montana Business Quarterly, Spring 1981.

7. "Montana in 1981: An Economic Perspective," by Maxine C. Johnson.

8. "Missoula, Billings, Great Falls, and Helena," by Paul E. Polzin.

Montana Business Quarterly, Summer 1981.

9. "The Bozeman Area Economy," by Maxine C. Johnson.

10. "Recent Recreation and Tourism Studies," by Paul R. Pacini.

Montana Business Quarterly, Autumn 1981.

11. "What Montanans Told Us About--Economics, Growth and Other Issues," by Mary L. Lenihan.

12. "Montana Population by Race and Ethnic Origin," by Mary L. Lenihan.

13. Montana Outfitters and Guides Association, in cooperation with the Montana Chamber of Commerce and Montana State University. "Economic Impact of the Outfitting Industry in Montana," 1975.

STATE OF MONTANA

14. Research and Statistical Service Bureau, Revised County Population Projections, 1981.

15. Department of Labor and Industry, Employment and Labor Force, issued monthly.

16. Montana Governor's Office. Economic Conditions in Montana 1980, prepared by Western Analysis, Helena.

17. Department of Natural Resources and Conservation. Historical Energy Statistics, by Lynda Steele. 4th Edition, 1980.

STATE OF NORTH DAKOTA

18. Bureau of Business and Economic Research, Statistical Abstract of North Dakota 1979.

19. U.S. Council of Environmental Quality, et. al., Public Opinion on Environmental Issues, 1980.

USDA FOREST SERVICE

20. Interagency Mineral Withdrawal Report for the Bob Marshall Area, Appendix C: Social and Economic Background Report, by David Kapaldo and Bert Wenner, August 1981.

21. Land Areas of the National Forest System, FS-360.

22. Use Patterns and Visitor Characteristics, by Robert C. Lucas. Research Paper INT-253, 1980.

23. Wilderness Management, by Hendee, Stankey, and Lucas. Misc. Publication 1365, 1978.

USDA FOREST SERVICE, ROCKY MOUNTAIN REGION

24. Oil and Gas Exploration and Leasing Within the Washakie Wilderness, Draft EIS, 1981.

USDA FOREST SERVICE, NORTHERN REGION

25. Environmental Assessments for Oil and Gas Leasing: Deep Creek and Reservoir North, 1980; Consolidated Georex Geophysics, 1980.

26. Social and Economic Assessment of Oil and Gas Activities: Information and Guidelines, by Bert Wenner, R1 81-01, 1981.

27. A Survey of Social and Economic Effects of Oil and Gas Development: Little Missouri National Grasslands, North Dakota, by Bert Wenner, R1 81-1, 1981.

28. USDA Soil Conservation Service. Survey of Public Attitudes toward Soil, Water, and Renewable Resource Conservation Policy, 1980.

USDC BUREAU OF THE CENSUS

29. Census of Population, 1960, 1970, 1980

30. Statistical Abstract of the U.S., 1979.

31. County Business Patterns, 1979.

USDC BUREAU OF ECONOMIC ANALYSIS

32. Regional Economic Information System, April 1981.

Attachment 2.--Selected items from surveys of environmental values. 1/

Question (sometimes paraphrased)	Survey, Scope, and Year	Responses; Percentage Supporting Each			
1. Do you consider yourself an environmentalist?	CEQ-Resources for the Future, 1980, National sample.	Definitely 18	Somewhat 55		Other 27
2. What is orientation toward the environmental movement?	CEQ-RFF, 1980, as follows: National, Mountain States, W., No. Central	Active Participant 7 10 6	Sympathetic 55 54 69	Unsympathetic 4 7 2	Other 34 29 23
3. Which viewpoint do you support?	Harris, 1980, National, for USDA (see appendix for details)	Preserving nature for its own sake 32	Using nature to produce goods we use 51		Neutral 15
		Getting energy by insulating homes, driving smaller cars, and conserving more energy 59	Digging more coal mines, drilling more oil wells, building more power plants to produce energy 26		Neutral 13
		Saving resources for future generations 60	Using resources to benefit the present generation 24		Neutral 14
		A country that believes protecting the environment is more important than economic growth 24	A country that believes economic growth is more important than protecting the environment 52		Neutral 21
4. Endangered species must be protected, even at the expense of commercial activity.	CEQ-RFF, 1980, National	Agree 73	Disagree 20		Other 7

Question (sometimes paraphrased)	Survey, Scope, and Year	Responses: Percentage Supporting Each			
5. What is more important?	NBC News, Fall 1979, National (following summer gasoline shortage	Building a pipeline or refinery 47	Protecting environment 40	Other 13	
6. Environmental protection.	Roper, 1979, National	Haven't gone far enough 29	Are about right 36	Have gone to far 24	
7. What kinds of environmental standards would you enforce?	Harris, 1979, National	Toughest possible, even at increased cost to business and consumer 45	Somewhat lower standards 36	It depends 12	
8. The amount we are spending on the environment is -	NORC, 1980, National	Too little 48	About right 31	Too much 15	
9. How serious is the loss of places for wildlife to live?	Harris, 1979, National	Very serious 47	Somewhat serious 37	Other 17	
10. How much concern have you about shortages of oil, gasoline, coal, electricity, or other fuels?	Roper, 1980, National	A great deal 73	Not much at all 7	Other 20	
11. Are you on the side of adequate energy or environmental protection?	Harris, Fall 1979, National, after summer gas shortage	Energy 43	Environment 38	Neither, or no conflict 10	
12. Same as above question.	CBS-NY Times poll, Fall 1979	Energy 41	Environment 43	Other 16	
13. Which do you favor, wilderness or timber production?	NORC, 1977, National	Increased wilderness protection "approx. 2/3"		Increased timber production "approx. 1/3"	
14. In energy-environment conflicts, which do you favor?	Montana Governor's Office, 1977, Montana	Environment 11	Mixed, but environment emphasis 40	Mixed, but economic emphasis 33	Economic 3
15. In order to live in Montana, I'm willing to bypass opportunities to earn more elsewhere.	Montana Energy Survey, 1974, Montana	Agree or strongly agree 74.2	Disagree or strongly disagree 16.3	Neutral 7.8	

Question (sometimes paraphrased)	Survey, Scope, and Year	Responses; Percentage Supporting Each					
16. I prefer Montana as it is rather than risk damaging it by further industrialization.	Montana Energy Survey, 1974 Montana	Agree or strongly agree 62.6		Disagree or strongly disagree 27.6		Neutral 8.7	
17. Does the U.s. have too much, adequate, or too little wilderness?	Missoula, Area Attitudes Survey toward Forest Industry, 1979.	Needs more		Adequate		Too much	
18. Does Montana have too much, adequate, or too little wilderness?	" " " "	62 42		34 54		4 4	
19. Do commercial uses conflict with recreation uses in National Forests?	" " " "	No conflict 49		Serious conflict 31		Not too serio 19	
20. Did you visit a wilderness area like the Bob Marshall, in the past year?	" " " "	No 72	Once 11	Twice 7	3-5 times 6	6-30 times 4	
21. All things considered, we should	North Dakota State Governor's Office, 1978	Allow some industrial growth 64		Encourage full growth potential 22		Limit economy to present size 11	Don't know 3
22. If oil were discovered in Yellowstone National Park it would have to be developed even if it harmed wildlife.	USDI Fish and Wildlife Service and Yale School of Forestry, 1979	Strongly Agree 3	Agree 13	Slightly Agree 13	Slightly Disagree 14	Disagree 33	Strongly Disagree 19
23. Americans should have auto access to scenic, public areas even if it disturbs wildlife.	" " "	2	12	11	13	39	21
24. Is there enough National Forest Wilderness?	Lincoln County (MT) survey, 1976	Need More 12	Yes Enough 75	Too Much 4	Other 11		

25. Why do you choose to live in Flathead County?	Flathead County Development Office Survey, 1980	Clean Environment	Recreation	Job Opportunities	
Percent		53.9	50.3	29.7	

26. During the next five years Flathead County will	" "	Become an even better place to live	Not be as good as it is now	Be about the same
Percent		17.9	54.1	28.0

27. Development in your area should occur	" "	According to a land use plan	Indiscriminately, where land owners want it
Percent		77.8	22.2

28. What are the most important land use criteria (on a scale of 1 to 5)?	" "	Maintaining a pleasant living environment	Protecting environemtnally sensitive and critical areas	Promoting energy-efficient developments	Getting the most use of the land for the most people
Percent		3.97	3.42	3.09	2.81

29. How much should the state's economy grow during the next 5 years?	University of Montana Poll of Montana, 1981.	A great deal, a good deal	A fair amount	Not too much	Not at all
Percent		28	55	13	2

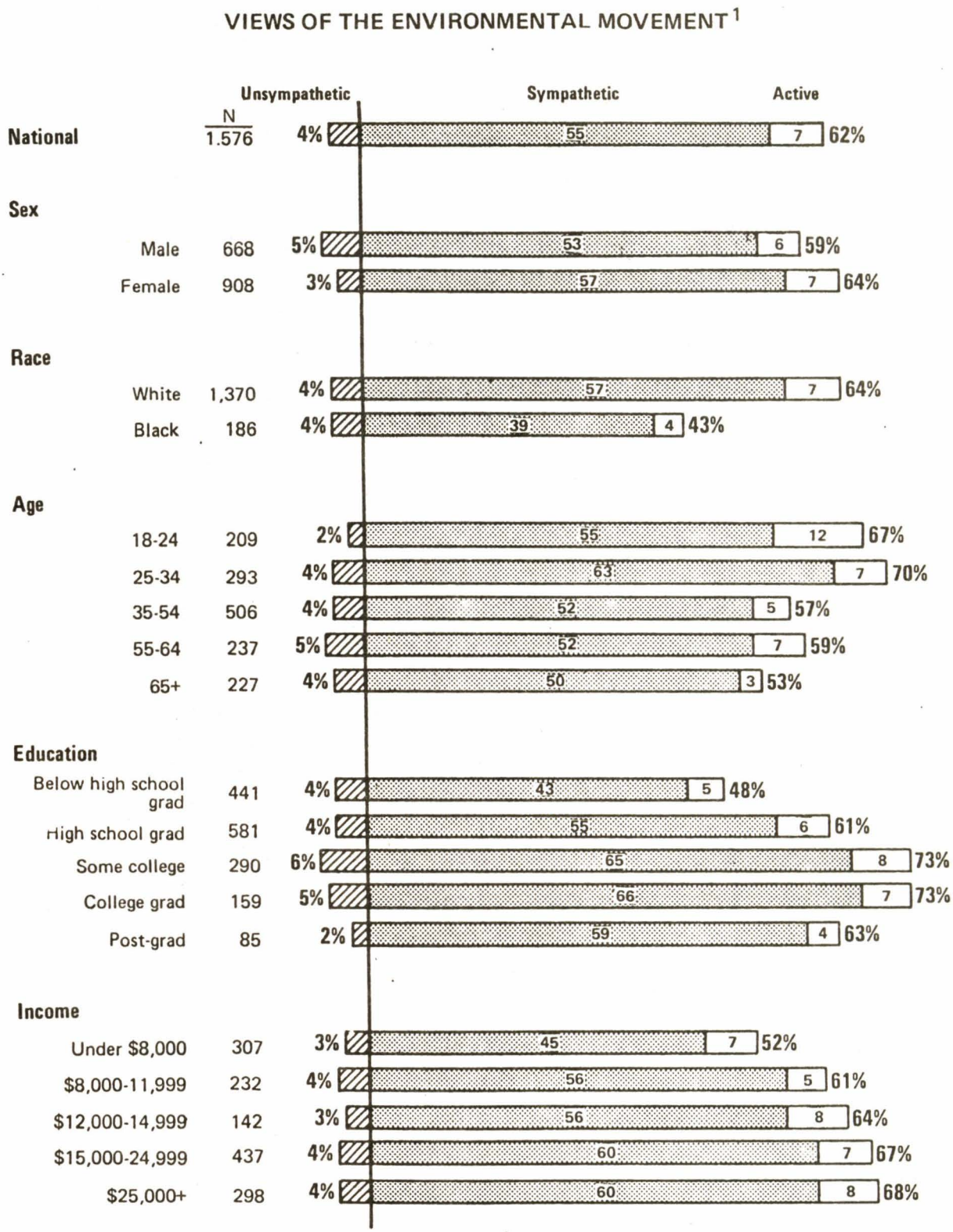
30. How satisifed are you with your standard of living?	" "	Completely or somewhat satisfied	Completely or somewhat dissatisfied
Percent		75%	22%

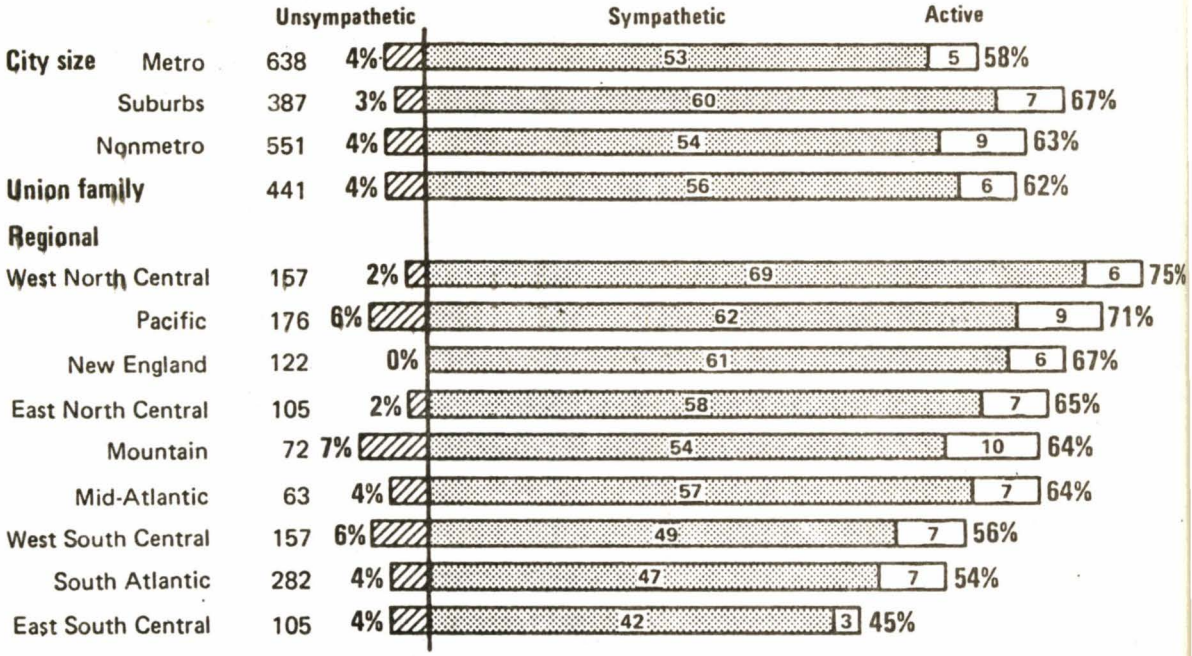
1/ More details available in Council of Environmental Quality, et al., Public Opinion on Environmental Issues, 1980; USDA Soil Conservation Service., Survey of the Public's Attitudes toward Soil, Water, and Renewable Resources Conservation Policy, 1980; and polling service publications.

Percentages sometimes total less than 100, assumedly because of nonreponse, no opinion, etc.

31. Do you favor having wilderness areas?	University of Montana, Montana poll, 1982	Percent yes: 85
32. Oil and gas development should not occur in wilderness areas.	University of Montana, Montana poll, 1982	Percent agreeing: 72
33. Oil and gas development should be allowed on public lands adjacent to wildernesses.	University of Montana, Montana poll, 1982	Percent agreeing: 66

34. A Resources for the Future (RFF) survey question, spring 1980




Unsympathetic
Sympathetic
Active
City size
Metro 638 4% 53 5 58%
Suburbs 387 3% 60 7 67%
Nonmetro 551 4% 54 9 63%
Union family 441 4% 56 6 62%
Regional
West North Central 157 2% 69 6 75%
Pacific 176 6% 62 9 71%
New England 122 0% 61 6 67%
East North Central 105 2% 58 7 65%
Mountain 72 7% 54 10 64%
Mid-Atlantic 63 4% 57 7 64%
West South Central 157 6% 49 7 56%
South Atlantic 282 4% 47 7 54%
East South Central 105 4% 42 3 45%

1. RFF survey, Q. 54. In recent years, the environmental movement has been very active. Do you think of yourself as: an active partcipant in the environmental movement, sympathetic towards the movement but not active, neutral, or unsympathetic towards the environmental movement?

The categories not shown on this figure and the national percentages are: neutral, 31 percent; not sure, 3 percent.

ATTACHMENT 3: ECONOMIC BASE OF LOCAL ZONE COUNTIES, 1979

Section & Forests	Counties Included	Proprietors		Farm Workers	Agric. Services	Mining	Constr.	Manufacturing		Trans. Utilities	Sales		Finance, Ins., Real Estate	Services	Government		Total Number Employed	Percent In Agric.	Number Jobless In 1979
		Farm	Nonfarm					Nondurable	Durable		Wholesale	Retail			Federal	State & Local			
Northwest Montana: Bitterroot Flathead Kootenai Lolo	Flathead	763	2,667	143	76	20	1,097	289	3,570	1,538	747	3,768	730	3,495	995	2,652	22,550	4.0	1,626
	Lake	975	1,027	282	54	10	219	41	561	95	89	901	172	877	373	873	6,549	19.2	494
	Lincoln	152	798	22	18	200*	344	28	1,590	379	61	775	120	537*	862	761	6,842	2.5	750
	Mineral	43	137	L	10*	20*	15	0	304*	96	L	268	19	58	123	329	1,454	3.3	129
	Missoula	291	2,897	101	67	33	2,359	1,337	3,482	2,431	1,736	6,357	1,361	6,429	1,929	5,229	36,045	1.1	2,251
	Ravalli	729	1,144	241	24	15	223	131	544	218	76	986	194	753	679	848	6,805	14.3	604
	Sanders	280	593	60	12	50*	25	14	442	156	33*	378	56	964	252	446	3,811	8.9	310
	TOTAL	3,233	9,263	854	251	348*	4,282	1,840	10,493	4,913	2,747	13,433	2,652	13,113	5,213	11,138	84,056	4.9	6,164
Southwest Montana: Beaverhead Deer Lodge Gallatin	Beaverhead	242	474	384	10	50*	66*	------ 143	------	190	154	521	71	443	230	511	3,495	17.9	152
	Deer Lodge	58	306	34	12	61	83	------1,074	------	240	31	554	113	579	175	1,326	4,646	2.0	380
	Gallatin	707	1,662	419	40*	30*	855	379	960	718	539	3,636	786	3,081	761	4,455	19,127	5.9	764
	Granite	120	194	89	L	61	L	1	62	L	12	107	12	69	54	205	1,069	19.6	86
	Madison	362	334	329	32	50*	66	4	16	39	21*	196	53	237	109	395	2,367	29.2	73
	Park	327	692	203	36	20*	199	166	307	880	43	830	236	968	150	571	5,617	9.4	318
	Silver Bow	71	1,231	50	22*	1,840	555	497	152	708	848	2,963	470	2,805*	676	2,876	16,598	0.7	1,136
	Sweet Grass	233	172	126	10*	30	52	19	0	22	20*	265	30	134	47	241	1,382	26.0	21
	TOTAL	2,120	5,065	1,634	172*	2,142	1,881*	1,153	2,627	2,802	1,668	9,072	1,771	8,316	2,202	10,580	53,205	6.9	2,930
North Central Montana: Helena Lewis & Clark Add:	Broadwater	185	186	130	17	10*	58	------ 276	------	10*	103*	198	25	60	62	227	1,506	20.9	64
	Cascade	729	2,632	446	80	10	2,093	1,015	688	1,987	2,975	6,962	2,269	7,322	7,160	3,962	40,365	4.5	2,111
	Fergus	825	633	322	27	L	356	79	208	245	218	854	197	855	354	840	6,018	29.6	209
	Jefferson	160	265	55	10	17	45	0	34	32	14	129	32	142	106	848	1,889	11.4	172
	Judith Basin	388	154	158	10*	20*	12	L	L	13	14	89	11	40	57	194	1,159	47.1	101
	Lewis & Clark	253	1,557	210	28	30	727	425	702	1,848	703	3,271	1,407	4,439	1,499	6,578	23,675	2.0	1,171
	Meagher	101	127	118	L	0	13	3	143	10*	L	70	20	118	43	137	935	23.4	44
	Powell	176	250	186	19	40*	20	10	155	30*	25	350	67	339	97	959	3,092	11.7	191
	Glacier	324	408	205	30	495	214	------ 220	------	224	153	616	84	1,568	506	649	5,696	9.3	478
	Pondera	502	367	208	24	28	109	14	42	116	192*	401	86	267*	80	422	3,096	28.1	130
	Teton	691	296	271	37	22	64	17	18	201	160	196	89	208	108	410	2,788	35.4	100
	Toole	375	343	140	13	283	93	30	13	241	148*	347	73*	221	83	491	2,957	24.3	113
	TOTAL	4,709	7,218	2,449	295	962	3,804	1,714	2,388	4,957	4,710	13,483	4,360	15,579	10,155	15,717	92,801	7.3	4,884
Southeastern Montana and Western North Dakota Custer	Big Horn	474	361	429	10*	925	242	------ 27	------	107	110*	435	91	1,410	404	601	5,683	15.9	296
	Carbon	670	413	196	45	25*	43	------ 26	------	128	30	365	70	269*	118	412	2,931	29.5	142
	Rosebud	315	369	272	30	393	282	8	214	253	27	405	65	1,051	216	557	4,457	13.2	231
	Stillwater	405	312	198	18	25*	50	9	105	74	32	234	55	220*	66	285	2,107	28.6	75
	Yellowstone	1,015	4,825	466	243	468	2,886	3,107	1,484	4,556	5,418	10,756	2,462	10,297	2,253	5,760	55,996	2.6	2,037
	Golden Valley, ND	309	154	54	10	25*	18	L	20*	47	40*	146	36	115	42	192	1,307	27.8	47
	Billings, ND	285	16	26	L	80*	50*	0	50*	0	L	20*	L	11	52	66	1,026	30.3	29
	TOTAL	3,473	6.450	1.641	361*	1,941*	3,761*	3,125	1,926	5,165	5,657*	12,361	2,784	13,373	3,151	7,873	73,507	7.0	2,857
	Montana (%)	6.2	9.2	2.9	0.6	2.1	4.3	2.5	4.8	6.2	4.8	15.4	3.6	16.6	6.3	14.7	365,927	9.1	19,000
	U.S. (%)	2.6	6.5	1.2	0.5	0.9	4.3	4.8	12.1	4.9	5.0	14.3	4.8	17.9	5.0	12.2	105.45 million	3.8	

Source: USDC Bureau of Economic Analysis

L = Less than 10
* = Estimates added to REIS data (usually County Business Patterns data)